University of Alberta

Clinical Practice Anxiety Among Third Year Baccalaureate Nursing Students in CBL and Those in Traditional Curricula

by

Katherine Melo ©

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Abstract

Background: Nursing students frequently experience high levels of anxiety during clinical practice. A review of the literature revealed that there is a lack of nursing research examining the relationship between nursing curriculum and clinical practice anxiety.

Methods: A descriptive, comparative research design was used to compare levels of clinical practice anxiety experienced by third year baccalaureate nursing students in a context-based learning (CBL) curriculum (n = 53) with those in a traditional, lecture-based curriculum (n = 42). Students completed a web-based questionnaire consisting of a demographic profile, the Spielberger State-Trait Anxiety Inventory (STAI), and the Clinical Experience Assessment Form (CEAF).

Findings: Nursing students from both sample groups found clinical practice to be very anxiety provoking. Differences between groups on total anxiety scores did not achieve statistical significance; however, there were statistically significant differences between the groups on individual scale items. Trait anxiety was found to be a significant predictor of clinical practice anxiety.

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Dedication

I wish to dedicate this thesis to my son Ryan and his wife Brianna, my daughter Kimberly, my mother Emma and father Roy, my sister Debbie, and my brothers Roy, Brad, and Darcy for their wonderful support and encouragement. Also to Mark for his invaluable expertise in information technology, tremendous support, and unwavering confidence in my ability to succeed

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Chapter 1

Clinical Practice Anxiety Among Third Year Baccalaureate Nursing Students in CBL and Those in Traditional Curricula

Nursing students frequently experience stressful situations (Gwele & Uys, 1998; Mahat, 1998; Pagana, 1988; Sheu, Lin & Hwang, 2002), and anxiety (Cooke, 2005; Kleehammer, Hart, & Keck, 1990; Kim 1997) throughout their nursing education, particularly in clinical practice. Anxiety occurs when an individual perceives a stressor as having an element of threat (Spielberger, 1979; Emilien, Durlach, Lepola & Dinan, 2002). The assertion that high levels of anxiety expose the learner to a host of harmful physiological, psychological, and cognitive effects is well documented in the nursing literature (Lo, 2002; Kirkland, 1998).

Because nursing students routinely move between controlled laboratory skills practice and clinical practice, many find the transition from lab setting to patient care very challenging (Sheu et al., 2002). Sharif & Armitage (2004) identified clinical experience as a significant source of anxiety for nursing students and suggest that there is a "direct relationship between anxiety and learning" (p. 387). High levels of anxiety, therefore, have the potential to negatively affect student reasoning and problem solving in a clinical practice setting.

Preparation for clinical practice is a time-consuming and stress provoking process for students (Gwele & Uys, 1998; Sharif & Armitage, 2004). The unpredictability of the clinical environment (Lo, 2002) coupled with feelings of uncertainty about their abilities (Gwele & Uys; Kim, 1997; Pagana, 1988) are significant stressors and may put students at risk for impaired coping and other mental health problems (Bachman, 1998; Goetz, 1998).

In times of a global nursing shortage, it is imperative that nursing education goes beyond facilitating skill and knowledge acquisition to a process that nurtures its future practitioners, fosters lifelong commitment to nursing, and builds resilience in a demanding practice environment. To accomplish this, nurse educators must be aware of how high levels of anxiety can impact learning in clinical practice before they can best support students in the clinical learning environment.

Problem Statement

A comprehensive literature search has revealed that there are no studies specifically investigating the relationship between nursing student anxiety in the clinical practice setting and basic nursing education curriculum. There are several studies from the medical and nursing literature comparing traditional curricula with those using problem-based learning (PBL) or self-directed learning (SDL) (Kaufman & Mann, 1999; Kiessling, Schubert, Scheffner, & Burger, 2004; Rideout et al., 2002; Siu, Laschinger, and Vingilis, 2005; Wilson, 1992), and several studies investigating anxiety in nursing students (Cooke, 2005; Kim, 1997; Kleehammer et al., 1990; Sharif & Armitage, 2004); however, there is a lack of nursing research exploring the relationship between basic nursing education curriculum and the levels of anxiety experienced by students in the clinical practice setting.

Implementation of the appropriate support measures for students experiencing high levels of anxiety in clinical practice is dependent upon evidence obtained through rigorous nursing research. To better understand how anxiety affects student learning in the current nursing climate, it is prudent to begin by quantitatively measuring the levels of anxiety experienced by the students in the clinical practice setting.

Purpose of the Study

There are no published reports of comparisons of clinical practice anxiety among undergraduate nursing students in a traditional curriculum and students in a context-based learning (CBL) curriculum. The purpose of this study is to compare levels of clinical practice anxiety between third year baccalaureate nursing students in a context-based learning curriculum and those in a traditional lecture-based curriculum.

Significance of the Study

High levels of anxiety can impact how students think and perform in clinical practice (Cook, 2005; Kleehammer et al., 1990; Sharif & Armitage, 2004). Excessive stress can also expose the learner to a multitude of harmful physiological, psychological, and cognitive effects (Kirkland, 1998; Lo, 2002) and may challenge students' coping abilities (Lo, 2002). Poor student coping can ultimately lead to demoralization and attrition (Last & Fulbrook, 2003), and, perhaps, serious mental health problems including increased risk for suicide (Bachman, 1998; Goetz, 1998).

In light of this important evidence, further nursing research is needed to determine if there is a relationship between educational curriculum and the levels of anxiety experienced by students in clinical practice. Potential benefits resulting from this study include:

- A better understanding of which clinical stressors create the most anxiety for students

- Suggestions for ways that educators can best support students in the clinical practice setting
- Possible directions for curriculum change

Objectives of the Study

The objectives of this study were to: 1) determine the levels of anxiety experienced by third year nursing students in the clinical setting; 2) examine the relationship between trait anxiety and the levels of anxiety experienced by students in the clinical setting; 3) examine the relationship between levels of anxiety and certain sample characteristics; and 4) compare student levels of anxiety in a CBL curriculum with those in a traditional curriculum.

Research Questions

This study addressed the following research questions:

1) What are the differences in levels of clinical practice anxiety between third year baccalaureate nursing students in CBL and those in traditional curricula?

2) What is the relationship between trait anxiety and the levels of anxiety experienced by students in the clinical practice setting?

3) To what extent do sample characteristics such as age, gender, and hours of study per week influence clinical practice anxiety?

Conceptual Definitions

Problem-based learning: 1) learning is based on problem-solving rather than simple memorization of content; 2) the student is actively engaged in the learning process; 3) the instructor's role is one of facilitator rather than teacher; 4) work is collaborative and cooperative rather than individual and competitive; and 5) an instructional method that involves the use of problems that require a more systematic and in-depth investigation in order to solve them (Kanter, 1998).

Context-based learning (CBL): refers to a philosophical variation of PBL that is similar in its approach to learning; however, in CBL, the focus shifts away form solving a problem to exploring client experiences and focusing on "health, strengths, situation exploration and support" (Williams & Day, 2007, p.224).

Conventional instruction: "is marked by instructor provided learning objectives and assignments, large-group lectures, structured laboratory experiences, and periodic multiple choice tests of achievement" (Albanese & Mitchell, 1993, p. 54).

Traditional curriculum: a curriculum that uses conventional instruction methods.

Clinical experience: an observational or practice situation where students interact with clients and other caregivers, and where students can apply their knowledge and critical thinking skills (Kim, 1997).

Stress: "a complex psychobiological process that consists of three major elements. The process is initiated by a situation or stimulus that is potentially harmful or dangerous (*stressor*). If a stressor is *interpreted* as dangerous or threatening, an *anxiety reaction* will be elicited" (Spielberger, 1979, p. 17).

Stressors: "situations or stimuli that are objectively characterized by some degree of physical or psychological danger" (Spielberger, 1979, p. 17).

Anxiety: "an emotion based on the appraisal of threat, an appraisal that entails symbolic, anticipatory, and uncertain elements" (Lazarus & Averill, 1972, vol. 2, p.246).

State Anxiety: "an emotional reaction that consists of subjective feelings of tension, apprehension, nervousness and worry, and heightened activity of the autonomic nervous system" (Spielberger, 1979, p. 17).

Trait Anxiety: "The individual differences in anxiety proneness, that is, in the tendency to see the world as dangerous, and in the frequency that state anxiety is experienced over a long period of time" (Spielberger, 1979, p. 60).

Operational Definitions

Demographic Profile/Sample Characteristics include age, gender, full or part-time status as a student, previous and current clinical experience, psychological supports, preferred learning methods, and number of hours spent studying per week.

State Anxiety: "an emotional reaction that consists of subjective feelings of tension, apprehension, nervousness and worry, and heightened activity of the autonomic nervous system" (Spielberger, 1979, p. 17) measured at a given point in time using Form Y-1 of the State Anxiety Scale of the State-Trait Anxiety Inventory (STAI).

Trait Anxiety (T-Anxiety): "individual differences in anxiety proneness, that is, in the tendency to see the world as dangerous and in the frequency that state anxiety is experienced over a long period of time." (Spielberger, 1979, p.60) using Form Y-2 of the Trait Anxiety scale of the Spielberger (1979) State-Trait Anxiety Inventory (STAI).

Clinical Practice Anxiety: scores obtained by students on the "Clinical Experience Assessment Form" (Kleehammer, Hart, & Keck, 1990).

Chapter 2

Literature Review

A shift in nursing education from hospital-based programs to higher education has resulted in fundamental changes to basic nursing education curricula (Biley & Smith, 1998). Rapidly advancing technology, along with changes in the economic and cultural milieu, has created a need for nurses whose requisite skills go beyond performing basic nursing tasks to a level that enables them to critically analyze and respond to complex clinical situations (Williams, 2002). To accommodate the need for a shift in skills and abilities, nursing education has moved away from the traditional apprenticeship model to one that promotes development of critical thinking and lifelong learning (Biley & Smith, 1998).

Theories of Learning

Learning theory is derived from many different disciplines, each incorporating its own unique perspectives (Driscoll, 2005). Furthermore, instructional methods are rooted in diverse pedagogical philosophies that are shaped by epistemological beliefs about learning (Driscoll, 2005). Nursing education ranges from teaching basic psychomotor skills to advanced reasoning and problem solving. Therefore, to fully explore the relationship between the learning environment and learning outcomes, it is necessary to critically examine the theoretical underpinnings that guide different educational approaches.

Behavioral Theories

Behavioral psychologists developed their theories based on an assumption that learning can be understood through observation and, therefore, in order to ascertain that learning has occurred, one must be able to observe behavioral changes (Savin-Baden & Howell Major, 2004). Early examples of behavioral theory were Watson's classical conditioning and Skinner's operative conditioning. Using a behavioral approach, an educator would be primarily concerned with enhancing knowledge acquisition and simple skill development rather than problem-solving ability (Savin-Baden & Howell Major, 2004).

Cognitive Psychology

During the early 1900's, Gestalt psychology, which later evolved to become an integral foundation for cognitive theories of learning, posed a radical theoretical shift from the behaviorist's theories by hypothesizing that knowledge is derived from more than just experiences and sensory stimuli (Driscoll, 2000; Tuckman, 1992). Cognitive psychology theorists posited that learning occurs internally as the learner processes information (Driscoll, 2005), and includes mental processes such as "insight, information processing, memory, and perception" (Savin-Baden, Howell Major, 2004, p. 24).

Constructivism

The newer theoretical frameworks for learning have evolved from psychology, humanism, and perceptual-existential theories (Van Hoozer, 1987). Constructivism is a psychological theory of learning based on the works of Piaget and Vygotsky (Vandeveer & Norton, 2005), wherein the mind of the learner becomes the creator of the learner's reality (Savin-Baden & Howell Major, 2004). According to Driscoll (2005), constructivist philosophy is based on an assumption that knowledge is constructed by the learner, and goals for learning include "reasoning, critical thinking, understanding and use of knowledge, self-regulation, and mindful reflection" (p.384). The role of the learner is an active one that challenges the learner to build on previous knowledge and "construct" new knowledge, by interacting with his or her environment (Driscoll, 2005; Savin-Baden & Howell Major, 2004).

A literature review by de Kock, Sleegers, and Voeten (2004) examines new learning and explores how factors such as learning goals, division of teacher and learner roles, and the roles of learners influence the learning environment. According to de Kock et al (2004), new learning falls under a constructivist paradigm and involves the following three basic principles:

a) learning is a constructive activity, which has foremost implications for the learning goals that are set,

b) learning is a situated activity, which has foremost implications for the division of roles between teachers and learner in the learning environment,

c) learning is a social activity, which has foremost implications for the roles of the learners in relation to each other (p.50).

These assumptions have profound implications for the type of learning environment that is created and fostered within an educational setting. Constructivism is based on the premise that knowledge is not merely transferred from teacher to learner but is constructed by the learner who is an active participant in the learning process (de Kock et al., 2004).

New learning environments foster the development of intrinsic motivation in the learner and learner self-reliance on their own learning practices (de Kock et al., 2004). This approach differs significantly from the traditional behavioral approach in which the teacher controls the learning process and the learner follows the teacher's lead. The third principle alludes to the socially mediated nature of learning. Ideally, a learning environment should be one that minimizes the focus on individual performance and fosters cooperation rather than competition or one that (de Kock et al., 2004).

A particularly salient point raised by de Kock et al. (2004), is that in the knowledge construction model, learning functions become the goals for learning rather than the traditionally accepted acquisition of new knowledge and skills (outcomes) as the primary goals of learning. Learning goals are centered on the learning process as knowledge is constructed within the learning environment. Teacher and learner roles then take on new meaning, as the teacher becomes the coach rather than the transmitter of knowledge (deKock et al., 2004).

Principles of Adult Learning

Malcolm Knowles popularized a theory of adult learning known as andragogy, in which the motivation for learning is intrinsic to the learner and where learning is merely facilitated by teachers (Richardson, 2005). Knowles (1970) proposed that the principles and techniques used for teaching children might not adequately address the unique learning needs of adults and based his theory on three basic assumptions: 1) "adults can learn" (p.49); 2) "learning is an internal process" (p.50); and 3) "there are superior conditions of learning and principles of teaching" (p.52). The first assumption relates to the intellectual capacity of an adult to learn, which, according to Knowles, essentially remains unchanged throughout the lifespan. The second assumption challenges the traditional view of learning as an external process that is influenced by the excellence of the teacher, rather than an internal process where the learner is intellectually, emotionally, and psychologically engaged in the learning process (Knowles, 1970). The third assumption is based on the notion that certain learning conditions are more beneficial to the growth of the learner than others. These learning conditions are characterized by teaching and learning approaches where: learners feel motivated to learn, learning is a shared responsibility between learner and educator, learners actively participate in the learning process, learning builds on learner experience, and learners can observe progress towards their learning goals (Knowles, 1970).

Many of these theories have been integrated into modern nursing education curricula. Nurses use them as theoretical frameworks to analyze behavior and develop a holistic view of human learning (Van Hoozer, 1987). Rankin and Stallings (2001) suggested that learning theories could be adapted to fit different types of learning situations and learner needs. Nurse educators incorporate many of these theories into educational approaches with an understanding that each learner is unique and that learning is a complex interaction between an individual and his or her environment (Van Hoozer, 1987).

Traditional Teaching Methods

Traditional nursing programs typically use lecture as an instructional method in theory based courses (Wilson, 1992). There are many variations of traditional instructional methods and because they go beyond the scope of this paper, the term "traditional" will refer to methodologies that primarily involve lecture and structured discussion.

The advantages to using the lecture method are that it is it is efficient and generally less expensive because large numbers of students can be accommodated, the lecturer can clarify difficult concepts for students, and it requires the student to actively listen

(DeYoung, 1990). Disadvantages of this method include the comparatively passive role of the learner, inability of this instructional method to address the specific learning needs of each student, decreased emphasis on student problem solving, and limitations to the attention span of the audience (DeYoung, 1990). Since lectures focus primarily on content, a student's level of cognitive interpretation is mainly limited to memorization of information rather than advanced cognitive functions (Groh & Allen, 2001).

Group discussion, as an adjunct to formal lectures, has been incorporated into traditional nursing programs as well. By actively involving the learner in the learning process, it allows for greater clarification of concepts, exchange of ideas, and problem solving (DeYoung, 1990). Although it is more closely associated with social learning theories than the lecture method, learning objectives are still primarily teacher-focused rather than learner focused and discussion sessions are highly structured.

In traditional didactic teaching methodologies such as lecture, the teacher is responsible for assessing learner needs, developing a teaching plan, and evaluating outcomes through objective criteria. This puts the teacher in the role of "change agent" where change is planned and the teaching process is designed to alter students' cognitive, affective, and psychomotor behaviors by introducing new knowledge (Van Hoozer, 1987, p.48). According to Groh and Allen (2001) "didactic instruction reinforces in students a naïve view of learning in which the teacher is responsible for delivering content and the students are passive receivers of knowledge" (p.4).

Problem-Based Learning

Following the lead of medical educators at McMaster University (Antepohl & Herzig, 1999), and nursing educators, also at McMaster University (Ladoucer et al., 2004), many health disciplines have adopted a problem-based learning (PBL) approach. The learning objectives in PBL programs differ from the traditional in that they are learner centered rather than teacher centered (Kanter, 1998). Specific content is integrated into comprehensive "problems" that must be addressed by the students through collaborative partnerships with the tutor and with their peers (Kanter, 1998).

Problem based learning (PBL) utilizes an integrative approach that combines different theories of learning. Williams and Day (2007) credit Hesburgh, Miller, and Wharton with suggesting, "the most essential goal of a post-secondary institution is to inculcate learners with the understanding that learning is continuous and that they must be self-directed in their pursuit of continuous learning" (p.223). In a PBL classroom, the approach is student-centered and requires that students create their own learning objectives (Solomon & Finch, 1998).

Kanter (1998) describes the key characteristics of PBL: 1) learning is based on problem-solving rather than simple memorization of content; 2) the student is actively engaged in the learning process; 3) the instructor's role is one of facilitator rather than teacher; 4) work is collaborative and cooperative rather than individual and competitive; and 5) involves the use of "ill structured" (p. 391) problems that require a more systematic and in-depth investigation in order to solve them.

Rideout (2001) further describes the essential characteristics of PBL as:

- A curriculum that is organized around problems that are relevant to desired learning outcomes rather than organized by topics or disciplines.

- Conditions that facilitate small-group work, self-directed learning, independent study, functional knowledge, critical thinking, life-long learning, and self-evolution (p.23)

Phases of PBL

Small-group work is the norm in PBL; however, there is some variation in the literature as to what constitutes an appropriate group size. Williams & Day (2007) described the ideal group size as consisting of 9-12 students, whereas Kanter (1998) described an ideal group size as 6-9 participants.

Using a problem-centered approach, after a group has formed, students are presented with loosely structured written problems or scenarios that simulate real-life situations encountered by nurses in the clinical practice setting. The student group then collectively brainstorms to determine what they know and do not know about a situation. It is during this phase that hypotheses are generated by the group (Rideout, 2001).

Once group members have negotiated the division of learning tasks, each are responsible for accessing a variety of resources to "solve" the problem. The tutor acts as a facilitator and guides student learning by asking questions that allow the students to probe more deeply into the situation (Kanter, 1998; Williams & Day, 2007).

In the next phase of PBL, students are responsible for gathering information that will be shared with the group. Typically, classes have more unstructured time thus allowing students more time for independent study (Rideout, 2001). Students may obtain information from a variety of sources including print documents, electronic resources, and content experts. Individual group members are responsible for summarizing and synthesizing the information that is to be shared with the group.

According to Rideout (2001), in the fourth and fifth phases of PBL, newly acquired knowledge is discussed and critically appraised by group members. Knowledge is then applied to the case with the goal of explaining the phenomena under study. At this point, further knowledge gaps may be identified and delegated for further study.

The final phase of CBL involves critical reflection, not only on the resources and research methods content covered in the scenario, but also on the learning process itself (Williams & Day, 2007). Group process is evaluated and serves as a means of formative evaluation (Rideout, 2001). Group members identify what worked well and what didn't, then strategize how future problem solving could be accomplished. The responsibility for learning is owned by the learners with the faculty tutor merely acting as a guide (Rideout, 2001).

Rideout (2001) suggested that there is some variability in practice as to how much of a curriculum could be problem based. According to Rideout, in some cases PBL may be fully integrated into a program where the entire curriculum is developed around problems. In other cases, educational institutions have created a hybrid curriculum where PBL courses are combined with lecture-based theory courses.

Context-Based Learning (CBL)

"Central to any definition of PBL is the term *problem*" (Rideout, 2001, p. 23). This term is problematic for some nurses because they believe that the term *problem* focuses on illness rather than health (Rideout, 2001). A variation of PBL known as context-based learning (CBL) is similar to PBL in its approach to learning; however, it shifts the focus away form solving a problem to exploring client experiences and focusing on "health, strengths, situation exploration and support"(Williams & Day, 2007, p.224).

Comparison of Traditional and PBL (CBL) Curricula

Given the popularity of PBL in health sciences education, it is important to review published studies investigating the use of PBL. Although the medical literature has covered this topic extensively through meta-analyses by Albanese and Mitchell (1993), and Vernon and Blake (1993), comparatively few nursing studies have examined the outcomes of this educational approach. Rideout (2001) identified a lack of nursing research (especially randomized controlled trials) focusing on PBL, and called for more research by nurse educators in PBL curricula. Six quantitative studies and one systematic review involving students in PBL (CBL) curricula in the health disciplines were located and incorporated into the literature review.

Williams (2004) used a quasi-experimental design to examine the self-directed learner readiness of baccalaureate students at the beginning and the end of their first year in a CBL nursing curriculum using the self-directed learning readiness scale (SDLRS). According to Williams, although this study showed non-significant gains in SDLRS, focus group interviews revealed that many of the students could describe themselves as having the characteristics of self-directed learners.

Kaufman, Day and Mensink (1998) conducted a quantitative study on student stressors using samples of 83 medical students from a conventional curriculum and 84 medical students from a PBL curriculum. Data analysis revealed that PBL students cited ambiguity and a lack of feedback as stressors more frequently than did students in the traditional program. Consistent with other findings in the literature, students were unsure of the depth and breadth of learning that was required. Study limitations included non-randomized samples and the possibility of a novelty effect since the PBL class was the first of its kind in the curriculum (Kaufman et al., 1998).

In a randomized controlled trial conducted by the medical faculty at the University of Cologne (Atepohl & Herzig, 1999), 123 students participated in a study investigating differences in factual knowledge of basic pharmacology among students in a PBL program and students in a traditional program. Students were randomized to a study group (PBL, n = 63), or a control group (lecture based, n = 60). A three-way evaluation method was used to evaluate the study. These methods included a written pharmacology exam at the end of the semester, a questionnaire asking students about their preference for instructional method (before and after the course), and a second questionnaire to enquire about student satisfaction with the PBL course (Atepohl & Herzig, 1999). Study results suggested that the acquisition of factual knowledge was not impaired in the PBL group. These students found PBL to be effective as a learning method and preferred it to the traditional lecture method.

Moffat, McConnachie, Ross, and Morrison (2004) performed a longitudinal cohort questionnaire survey study of first year medical students enrolled in a PBL curriculum. The sample consisted of all students in first year medical studies (n = 275) from 1997 to 1998. Student scores on a 12-item General Health Questionnaire (GHQ-12) determined outcome measurement of stress and coping. Altogether, 193 students responded to the questionnaire with 70% responding to the first term questionnaire and 76% responding to the third term questionnaire. The researchers found that stressors were related to uncertainty about individual study behavior, academic development, and ability. Students felt that the learning environment caused minimal stress and reported using active coping strategies. The researchers acknowledged that one of study limitations could have been a bias created by the novelty effect experienced by students who are enrolled in a new program.

Miller (2003) conducted a randomized controlled trial nursing study comparing student outcomes on examination scores, final course averages, and satisfaction scores, among students using a lecture-based format and those using a PBL format in a graduate level pharmacology course. Study findings indicated no differences in outcomes; however, there was limited generalizability of the study findings due to a small sample sizes for the control group (n = 12) and the experimental group (n = 10). In addition, although faculty members who taught the pharmacology were experienced PBL facilitators, prior to the study, none of them had taught a pharmacology course using the PBL method (Miller, 2003).

Using a quasi-experimental design, Wilson (1992) examined the effects of instructional practice on nursing students' academic performance, attitude towards the teaching method, and test anxiety by comparing traditional lecture-based presentation with self-directed learning methods. The study sample consisted of 117 baccalaureate nursing students from three different sites. Study results showed that students in the self-directed group performed better academically than did students in the traditional lecture group, had more positive attitudes toward learning, and were less anxious before the final exam.

Williams and Beattie (2008) conducted a systematic review of problem-based learning as a teaching method in the clinical setting for all health professions. Findings based on five qualitative studies that met the inclusion criteria for the review suggested that there is a gap between how PBL is practiced in the classroom and how it is implemented in the clinical practice setting. Furthermore, implementation of PBL appeared to be influenced by clinicians' perception and understanding of the PBL process of learning. The authors found that clinicians frequently relied on more traditional methods of teaching and learning rather than utilizing the PBL method of facilitating critical thinking (Williams & Beattie, 2008).

Stress and Adjustment to PBL (CBL)

PBL is thought to facilitate and promote reflective and critically reflective nursing practice (Williams, 2001); however, it can be stressful for students when they shift from a traditional curriculum to a PBL curriculum (Williams, 2004). In a qualitative study by Solomon & Finch (1998) using a sample of 40 physiotherapy students, several recurrent themes emerged such as "uncertainty of breadth and depth of knowledge required, time pressures, lack of confidence to adapt to PBL, misunderstanding of faculty role, unrealistic expectations of self, group learning, workload, search stress, process evaluation and group panic" (p.60). Students have raised concerns about the dynamics of group process and inconsistency of faculty tutors (Williams, 2002), questionable accuracy of peer contributions (Solomon & Finch, 1998), and uncertainty as to the depth and breadth of knowledge that is required (Solomon & Finch, 1998; Williams, 2002). According to Biley (1999), the transition to PBL can be particularly difficult when the traditional didactic method is firmly engrained in a student's previous educational experiences and may interfere with learning in the initial phases.

Williams (2004) described nursing students as "feeling overwhelmed and uncertain", noting that "the anxiety associated with these feelings are common themes in the research literature related to adapting to PBL" (p. 283). These problems, however, can be reduced with appropriate faculty preparation and adequate student orientation (Williams & Day, 2007).

Anxiety and Clinical Practice

Stress and anxiety amongst nursing students are common subjects in the nursing literature (Lo, 2002). Causes of stress for nursing students are multifactoral; however, common themes have been found throughout the literature. Common causes of stress include: financial concerns, workload, multiple role stress, conflict with instructors, stressful work environments, and fear of making mistakes (Keith & Schmeiser, 2003); emotionally charged stressors such as patient death (Timmins & Kaliszer, 2002); a demanding program of theory and practice (Goetz, 1998); and a lack of professional proficiency and difficulty in developing relationships with other professionals (Sheu, Lin, & Hwang, 2002). Other factors include a lack of clinical knowledge and expertise, level of responsibility, caring for dying patients, time pressures, fear of harming the patient, unfriendly hospital staff, and interacting with instructors, and evaluation of clinical performance (Mahat 1998). Shipton (2002) cited a number of nursing studies that identify clinical practice as a prevailing source of stress for students, and described psychosocial changes associated with clinical stress such as "inability to prioritize, mood changes, anxiety, depression, withdrawal, loss of self-control, panic attacks, and nervousness" (p. 248).

In a study literature review by Sheu, Lin, and Hwang (2002), it was found that the initial clinical experience could often be the most stressful for students. This finding was supported by Pagana (1988), who conducted a mixed methods study with 262 baccalaureate nursing students in their first medical-surgical clinical experience. Students were asked structured questions to measure stresses, challenges, and threats as well as open-ended questions about clinical stressors. Pagana found that the qualitative data reflected the threatening rather than the challenging aspects of clinical practice and in the quantitative analysis, respondents generally rated most stressors at a higher level.

Shipton (2002) posited that high levels of clinical stress could have an adverse effect on student thinking and problem solving. Gaudry and Spielberger (1971) proposed that college level students who are anxious tend to have poorer academic performance and higher rates of attrition. In their review of the literature, Kleehammer and colleagues (1990) found "a curvilinear relationship between anxiety and learning" (p. 183). Although it is known that low to moderate levels of anxiety can motivate the learner, high levels of anxiety can impede learning (Kim, 1997). Sharif & Armitage (2004) found that there is a correlation between high levels of anxiety and learning, where learning becomes impaired in the presence of increased levels of anxiety.

Although nursing researchers have addressed the issues of student anxiety in a broader sense, little nursing research has been done to specifically examine the *levels* of clinical practice anxiety that are experienced by nursing students (Kim, 1997). Owing to the fact that long-term commitment to nursing may be impacted by student clinical experiences, it is important for educators to:

- Increase their awareness of potential sources of clinical practice anxiety so that strategies can be devised to mitigate the effects of stressful experiences
- Recognize behavioral signs of excessive anxiety so that early intervention through counseling and other supports can be offered

Anxiety as a Manifestation of Stress

Leading stress and anxiety authority Charles Spielberger (1979) hypothesized that stress is an inevitable consequence of living in a complex society. An anxiety reaction occurs as a response to stressful stimuli when the stressor is perceived as threatening (Spielberger, 1979). According to Emilien et al. (2002), anxiety is a selective, cognitive process that occurs when an individual interprets a stimulus as a threat. Although low levels of stress can be motivational, high levels of stress and anxiety can be harmful (Kim, 1997).

Although the complex neurobiology of anxiety is beyond the scope of this paper, it is important to note that physiological changes that occur as a result of intense anxiety can affect the cognitive and psychological functioning of an individual. According to Spielberger (1979), physiological indicators of stress include: increased blood pressure, heart rate, and respirations, multiple biochemical alterations, and changes in immune function. Sufferers may also experience a multitude of symptoms such as "abdominal pain, dizziness, nausea, vertigo, palpitations, dry mouth, hot flushes, hyperventilation, breathlessness, headaches, and restless legs." (Emilien et al., 2002, p.1).

According to Gaudry and Spielberger (1971), highly anxious persons tend to lack in self-confidence, have a poorer self-image, tend to be less inquisitive and exploratory, and are perceived more negatively by classmates. Psychological manifestations of anxiety can include: “fear, emotional worries, feelings of terror, and depersonalization” (Emilien et al., 2002, p.1), or feelings of “apprehension, tension, or dread” (Spielberger, 1972, p. 24). Psychological and behavioral manifestations of anxiety can vary considerably. They can range from a temporary, appropriate response to a stressor to a chronic pathological condition that interferes with social and cognitive functioning (Emilien et al., 2002). According to Lindop (1991), students respond to clinical stressors in a number of ways and may exhibit signs of physiological, behavioral and cognitive impairment.

Measurement of Anxiety Using the State-Trait Anxiety Inventory (STAI)

To properly assess the impact of stressful events on an individual’s ability to function at an optimal capacity, it is essential to distinguish between “an acute stress stimulus (state anxiety), and the more long standing characteristics of personality anxiety known as trait anxiety” (Gaudry & Spielberger, 1971, p. 67). According to Spielberger (1972), state anxiety (A-State) is associated with “temporary feelings of tension and uneasiness, and results in increased autonomic nervous system activity that fluctuates over time” (p.10). Trait anxiety (A-Trait) differs in the respect that it refers to “differences in the frequency that anxiety states are manifested over time” (Spielberger, 1972, p. 10).

The State-Trait Anxiety Inventory (STAI) is a 40 item self-report questionnaire designed to: 1) differentiate between state and trait anxiety; 2) measure how an individual is feeling at a particular point in time along with the intensity of the feeling (state anxiety); 3) measure an individual’s tendency to perceive a situation as threatening based on how they would normally respond to anxiety provoking situations [trait anxiety] (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983).

Psychometric Properties of the STAI

According to Spielberger et al. (1983), the STAI has been used extensively in research and clinical practice. In normative samples involving college and high school students, working adults, and military recruits, the state anxiety (S-Anxiety) scale of the STAI (Form Y) was reported by the authors to have an alpha reliability of 0.86-0.95. In normative samples of high school and college students using Form X of the STAI, test-retest coefficients ranged from 0.16 to 0.62. Marked differences were observed between males and females on S-Anxiety test-retest coefficients. The range for test-retest coefficients was 0.16 to 0.36 for females, and from 0.33 to 0.62 for males (Spielberger et al. 1983).

In normative samples of working adults, college students, high school students, and military recruits, the trait anxiety (T-Anxiety) scale was reported to have an alpha reliability of 0.89 to 0.91 using Form Y (Spielberger et al., 1983). Using Form X of the STAI for samples of high school and college students, the authors reported test-retest coefficients ranging from 0.65 to 0.86. Differences between test-retest coefficients for males and females on the T-Anxiety scale were less pronounced than for the S-Anxiety scale.

T-Anxiety test-retest coefficients ranged from 0.65 to 0.77 for females, and from 0.68 to 0.86 for males (Spielberger et al., 1983). Concurrent validity of the T-Anxiety scale (Form X) as been established by comparing it with other trait and anxiety measures (Spielberger et al., 1983). Using the IPAT Anxiety Scale, Taylor Manifest Anxiety Scale (TMAS), and the Zuckerman Affect Adjective Checklist (AACL), correlations coefficients with the STAI ranged from 0.52 to 0.85. Spielberger et al. reported correlation coefficients between Form X and Form Y of the STAI as 0.96-0.97 for the S-Anxiety scale and 0.96-0.98 for the T-Anxiety scale for college and high school students.

In normative samples of working adults, college students, high school students, and military recruits, Spielberger et al. (1983) reported correlations between S-Anxiety and T-Anxiety scales (Form Y) ranging from 0.59 to 0.75. According to Spielberger et al., correlations between S-Anxiety and T-Anxiety are usually higher in situations where self-esteem is threatened or where competence is evaluated. Correlations between S-Anxiety and T-Anxiety are lower in cases where there is some element of physical danger. Correlations between the S-Anxiety and T-Anxiety scores tend to be more highly correlated when given together in the same testing session (Spielberger et al., 1983). Barnes, Harp, and Jung (2002) found that internal consistency reliabilities for both scales were quite stable across several studies. Test-retest coefficients tended to be higher for the T-anxiety scale given that it measures more stable traits.

In a systematic review of 816 research articles using the STAI between 1990 and 2000, Barnes et al. (2002) emphasized that the psychometric properties (reliability) of this tool can differ between studies depending on "the age of the research participants, the form of the STAI, and the type of research design" (p. 603). In the same systematic review by Barnes et al. it was found that internal consistency of the state scale was relatively stable; however, due to the fact that the measurements are situation dependent, test-retest coefficients for state anxiety scores were lower than the scores on the trait scale.

In Kim's (1997) quantitative study of 61 baccalaureate senior nursing students, the reliability coefficient for the T-Anxiety was found to be 0.89. Alpha reliability for the S-Anxiety scale was 0.96 in Cook's (2005) study of 229 junior and senior baccalaureate students.

Summary

Nursing students experience many anxiety-provoking situations in clinical practice. While there is evidence to substantiate a link between anxiety and learning (Kleehammer et al., 1990; Spielberger, 1966), there are few nursing studies that specifically examine the levels of anxiety experienced by the students during clinical practice. Because clinical practice is a fundamental part of preparation for professional nursing practice, it is important to determine which factors are the most anxiety provoking for students and to assess the levels of anxiety that students are experiencing.

Curricula such as PBL (CBL) that promote critical thinking, problem solving, and collaboration among classmates have become a popular choice for health sciences curricula. Although this topic has been covered quite comprehensively in the medical literature through meta-analyses by Albanese and Mitchell (1993), and Vernon and Blake (1993), comparatively few nursing studies have been done to examine the outcomes of this educational approach. In particular, little is known about how students cope with the demands of clinical practice when educational preparation is delivered in a PBL curriculum versus a traditional curriculum. This has created a need for additional nursing research that quantitatively measures levels of anxiety experienced by students in a clinical practice setting and explores the relationship between anxiety and nursing educational curriculum.

Chapter 3

Methods and Procedures

Study Design and Population

To address the objectives of this study, a descriptive comparative design was used to answer the following research questions:

1) What are the differences in levels of clinical practice anxiety between third year baccalaureate nursing students in CBL and those in traditional curricula?

2) What is the relationship between trait anxiety and the levels of anxiety experienced by students in the clinical practice setting?

3) To what extent do sample characteristics such as age, gender, and hours of study per week influence clinical practice anxiety?

A descriptive, comparative design was chosen for this study because the relationship between the independent variable (nursing curriculum) and dependent variable (student anxiety levels in clinical practice) is unknown.

Ethics

Ethical approval was obtained from the Health Research Ethics Board (Appendix G) and the Research and Scholarly Development Committee (Appendix H). A letter outlining the purpose of the study, data collection procedures, and ethical considerations was sent to the Dean of the Faculty of Nursing and the Associate Dean of Research (Appendix C). Student participation in the study was entirely voluntary. Each eligible student received an email information letter (Appendix A) that ensured:

- anonymity and confidentiality

- the right to not participate in the study, or to withdraw from the study without penalty or loss of benefits
- that there were no anticipated risks or costs involved with participation in the study

Data from completed questionnaires were housed in a secure database. The only persons having access to the raw data were the researchers. The study results will be published as part of a Master's thesis; however, student identities will remain anonymous and will not be connected to any portions of the published data. Any additional data analysis outside of this study will require additional ethics review.

During the time of the study, the researcher was a tutor in year four of the program and was not involved in teaching third year students. The researcher's contact with the students was limited to data collection only.

Setting and Sample

The target population consisted of all third year nursing students in a four-year baccalaureate nursing program. A convenience sample was obtained from two groups of third year nursing students enrolled in clinical nursing courses at two large Western Canadian universities. One university uses a hybrid model of PBL known as context-based learning (CBL) curriculum, where nursing courses are offered in the small group format and support courses are delivered in a more traditional lecture-style format. In the CBL curriculum, students were solely involved in clinical practice for a 6-week block, which required them to be on the clinical units four times per week. The other university uses a traditional, lecture-style curriculum where clinical courses run concurrently with theory courses over a full (13-week) term.

Sample Selection

The study was conducted with students who were in their third year of a four-year nursing program. The decision to use third year nursing students was based on two factors. The first was based on an assumption that a substantial adjustment period would allow students adequate time to adapt to their respective educational programs. This decision was based on evidence found in the nursing literature suggesting that the initial clinical experience in first year can be the most stressful for nursing students (Pagana, 1988; Sheu et al., 2002). The second factor involves avoidance of a potential conflict of interest as the researcher study currently teaches in year four of the collaborative baccalaureate nursing program using the CBL curriculum.

All third-year nursing students who met the inclusion criteria were invited to participate in the study. Participation in the study was strictly voluntary. The sample group consisted of two types of students, those who have come directly out of high school and those who have already had some university experience. Participants were recruited through an introductory email letter (Appendix A) that outlined the purpose of the study and potential benefits that the study may generate.

Inclusion Criteria:

- Students who were in the third year of a four-year University or collaborative baccalaureate nursing program using a traditional curriculum or a context-based learning curriculum.
- Students who were enrolled into nursing courses offered on the main university campus
- Students having Internet access allowing them to complete a web-based survey

To achieve statistical power using a two-tailed independent t-test, each group would need to include 64 students to detect a moderate effect size using a significance level (α) set at 0.05 and Power (1-β) set at 0.80 (Cohen, 1988). Convenience sampling from larger centers could potentially improve the likelihood of obtaining larger sample sizes thus allowing for greater statistical power.

Instruments

The instruments used in this study (Appendix B) were comprised of three parts: Part I consisted of the demographic data collection tool, Part II consisted of the State-Trait Anxiety Inventory (STAI), and Part III consisted of the Clinical Experience Assessment Form (CEAF).

Demographic Profile

The demographic data collection portion of the questionnaire (Part I) was used to obtain information on sample characteristics such as age, gender, full or part-time student status, psychological supports, current and previous clinical experience, preferred learning methods, and number of hours spent studying per week.

Part II: The State–Trait Anxiety inventory (STAI) consists of two subscales, the State Anxiety scale (S-Anxiety) and the Trait Anxiety (T-Anxiety) scale. The S-Anxiety subscale measures feelings of tension, apprehension, nervousness and worry at a particular point in time (Barnes et al., 2002; Spielberger et al., 1983). The Trait Anxiety (T-Anxiety) scale is a subscale of the STAI used to measure anxiety proneness as a personality trait that fluctuates over time and assesses how people generally feel (Spielberger, 1983). Individuals who have higher trait anxiety generally view stressful situations as more threatening than those having lower trait anxiety and demonstrate higher S-Anxiety scores even in fairly neutral situations (Spielberger et al., 1983). The Y-1 form of the S-Anxiety scale and the Y-2 form of the T-Anxiety scales were chosen for this study because they have been shown to have slightly higher internal consistencies than other versions of this scale (Barnes et. al, 2002).

S-Anxiety Scale

The S-Anxiety (Form Y-1) scale uses a 4-point scale item response scale with choices ranging from *not at all* to *very much so* and consists of 20 questions measuring affective responses to stressful events. According to Spielberger et al. (1983), this portion of the questionnaire takes about 5 minutes to complete. Possible scores on the S-Anxiety could range from 20-80. According to Spielberger et al. (1983), a response of 4 indicates the presence of a high level of anxiety for anxiety-present items, while a response of 4 indicates the absence of high anxiety in the anxiety absent items. Total state anxiety scores (S-Anxiety) were calculated by computing the sum of all weighted raw scores obtained on each of the scales. Weighted scores for each of the responses on the S-Anxiety were computed by using the STAI marking guide developed by Spielberger et al. (1983).

Weights for the scores on anxiety-absent items were reversed using the STAI marking guide (Spielberger et al., 1983). For positively worded (anxiety-absent) items such as ‘I feel calm’, a score of 1 was given to the response *very much so*; a score of 2 was given to the response *moderately so*; a score of 3 was given to the response *somewhat*; and a score of 4 was given to *not at all*. For the negatively worded items (anxiety-present) such as ‘I am tense’, a score of 1 was given to the response *not at all*; a score of 2 was given to the response *somewhat*; a score of 3 was given to the response *moderately so*; and a score of 4 was given to the response *very much so*. Higher scores on the S-Anxiety scale were indicative of greater anxiety.

Cronbach's alpha coefficient for the S-Anxiety scale in this study was 0.95, which compares favorably with S-Anxiety reliability coefficient ranges for college students (0.91-0.93) reported by Spielberger et al. (1983), and 0.96 reported by Cook (2005) in study of baccalaureate nursing students.

T-Anxiety Scale

The T-Anxiety scale uses a 4-point item response scale and consists of 20 questions measuring the frequency with which an individual experiences certain feelings with responses ranging from *almost never* to *almost always.* According to Spielberger et al. (1983), this portion of the questionnaire also takes about five minutes to complete. Potential scores on the T-Anxiety scale could range from 20-80. As with the S-Anxiety scale, a response of 4 indicates the presence of a high level of anxiety for anxiety-present items, while a response of 4 indicates the absence of high anxiety in the anxiety absent items (Spielberger et al., 1983). Total trait anxiety (T-Anxiety) scores, were obtained by computing the sum of all weighted raw scores using the STAI marking guide developed by Spielberger et al. (1983).

Weights for the scores on anxiety-absent items were reversed using the STAI marking guide (Spielberger et al., 1983). For positively worded (anxiety-absent) items such as 'I feel rested', a score of 1 was given for the response *almost always*; a score of 2 was given for the response *often*; a score of 3 was given for the response *sometimes*; and a score of 4 was given to the response *almost never*. For the negatively worded (anxiety-present) items such as ' I feel nervous and restless', a score of 1 was given for the response *almost never*; a score of 2 was given to the response *sometimes*; a score of 3 was given to the response *often*; and a score of 4 was given to the response *almost always*. Higher scores on the T-Anxiety scale were indicative of greater anxiety.

Cronbach's alpha reliability coefficient for the T-Anxiety scale was 0.93 in this study, which was similar to, but higher, than the value of 0.89 obtained by Kim (1997; 2003) and consistent with the values of 0.90 to 0.91 obtained by Spielberger et al (1983) in a study of college students enrolled in introductory college courses at the University of South Florida.

Clinical Experience Assessment Form (CEAF)

Part III: The Clinical Experience Assessment Form (Kleehammer et al., 1990) was used to measure the level of anxiety experienced by students when exposed to known stressors during clinical practice. The 16-item questionnaire asked students to rate their responses on a 5-point Likert scale from *Strongly Disagree* to *Strongly Agree*. Questions were related to interaction with faculty members and unit staff, communication with patients and physicians, patient teaching, clinical skills, and clinical preparation. Possible scores could range from 16 to 80, with higher scores indicating higher levels of anxiety. The last item on the CEAF was an open-ended question asking students to describe the most anxiety producing aspect of clinical practice.

The reliability coefficient of the CEAF was 0.86 in this study, which indicates a high level of internal consistency and compares favorably with 0.88 in a study by Kim (1997; 2003), and 0.82 in a study by Kleehammer et a. (1990). Using 0.30 as a benchmark for a salient load on individual item construct validity, Kleehammer et al. reported a range of

0.31 to 0.68 for individual scales items indicating that all items on the scale measured one construct, which was students' perception of clinical experience.

Data Collection

Once ethical approval had been obtained, the researcher contacted the Dean of Nursing at the site using the CBL curriculum and the Associate Dean of Research at the at the site using the traditional curriculum to explain the purpose of the study, data collection procedures, and ethical considerations (Appendix C). Data collection was scheduled for October 1, 2007 to October 16, 2007 to access students in the regular track at the site using a traditional lecture-based curriculum and to access students taking clinical courses in the first six-week block during the fall term at the site using a CBL curriculum.

One week prior to the study, third year nursing students who met the inclusion criteria received an introductory letter via email (Appendix A) explaining the purpose of the study and data collection procedures. Students were asked to fill out a questionnaire that was posted on a secure website and required about 15 minutes to complete. At weeks one and two after the survey was opened, students received email reminders about the survey. To capture a greater number of responses, the data collection period was extended from September 26, 2007 to October 22, 2007. All data from the survey was downloaded to a secure database that could only be accessed by the researcher and the researcher's thesis supervisor.

Student emails were obtained from a university database that corresponded with the class lists of all students who were registered into third year clinical nursing courses during fall term 2007 at both university sites. After the researchers received approval from the Dean to access the students in the CBL group (Appendix I), an administrative assistant with access to student emails sent out a copy of the recruitment letter and an invitation for students to complete the survey (Appendix A). Once the data collection process had been approved by the Associate Dean for Research and the Research and Scholarly Development Committee for the traditional group (Appendix H), an administrative assistant sent an email to all eligible third year students with an attached recruitment letter and invitation to participate in the study (Appendix A).

Web-Based Questionnaires

The decision to use a Web-based questionnaire was based on its convenience, cost-effectiveness and the fact that administration of the questionnaire would not involve disruption of classroom time. Furthermore, students would be able to complete the questionnaire on their own time and would not have direct contact with the researcher. According to Thomas (2004), advantages to using web-based surveys include a lower cost than that of paper-based surveys, expedited data collection, greater variations in response formats, and the capability to customize the survey with graphics and multimedia.

Disadvantages to using web-based surveys include: 1) the requirement to have the necessary software and skills to program and upload the survey, 2) a generally poorer response rate than paper-based surveys, and 3) ensuring confidentiality of the data (Thomas, 2004). A systematic review by Baruch (1999) involving 175 academic studies in the years 1975, 1985, and 1995 (approximately 200,000 respondents) revealed that the average response rate for paper-based questionnaires was approximately 55.6 % with a standard deviation of 19.7. In a meta-analysis of 49 research studies by Cook, Heath, and

Thompson (2000), Web-based questionnaires were found to have an average response rate of 39.6%.

Data Analysis

All data collected from the web-based questionnaire were provided to the researcher on an electronic spreadsheet containing no information that could identify the individual participants. SPSS 16.0 statistical software was used to conduct the quantitative analysis. Descriptive statistics were used to summarize the characteristics of the sample and the scores on anxiety outcome measures. Measures of dispersion (range, variance and standard deviation) and central tendency (mean, mode, and median) were used to summarize continuous data. Frequencies and percentages were used to summarize nominal data. A chi-square analysis was used to compare the groups on categorical data such as age, gender, hours of study, previous and current clinical experience, preferred learning methods, and sources of psychological support. The alpha was set at .05 to test all statistical hypotheses.

To address the first research question, two-tailed independent t-tests were used to compare total S-anxiety, total T-Anxiety, and total CEAF scores between study groups. Spearman's rank order correlation was used to compute correlation coefficients between S-Anxiety, T-Anxiety, and CEAF scores. According to Polit and Beck (2004), when using ordinal level data, the appropriate correlation coefficient to be used is Spearman's rank order correlation or Kendall's tau. A chi-square analysis was used to compare proportions of students in categories of low, moderate, and high anxiety for S-Anxiety, T-Anxiety, and CEAF scales. Descriptive statistics were used to compare group means and standard deviations for the three highest and lowest mean scores for individual items on the S-Anxiety, T-Anxiety, and CEAF scales.

To address the second research question, Spearman's rank order correlation was used to compute correlation coefficients between T-Anxiety and CEAF scores. Descriptive analysis was used to compare students with high trait anxiety in each of the study groups on individual CEAF involving interpersonal relationships. Hierarchical regression was used to determine the amount of variance in CEAF scores that could be attributed to trait anxiety.

To address the third research question, Spearman's rank order correlation was used to compute the correlation coefficients between age and hours of study, and total S-Anxiety, T-Anxiety, and CEAF scores. An independent t-test was used to compare mean CEAF scores for males and females in the combined group. Hierarchical regression was used to determine the amount of variance in CEAF scores that could be attributed to age, hours of study, and trait anxiety.

Content analysis was used to identify major themes that emerged from an open-ended question asking students about the most anxiety provoking aspect of clinical practice

Validity and Reliability

Control of external factors that could potentially affect anxiety levels in students was considered in both the timing of the study and the decision to use third year nursing students. The opening date for the survey coincided with a time in which students had been working in their clinical placements for at least three weeks, improving the likelihood that they would be more familiar with the work environment and less likely to be anxious about unfamiliar surroundings.

Potential threats to internal validity would include history (external events that may increase levels of anxiety in the students) and selection (without randomization, pre-existing differences between the groups may produce non-equivalent groups). Without the use of stratified random sampling, a disproportionate number of females could be included in the sample group (Polit & Beck, 2004).

The research instruments for this study (CEAF and the STAI) have had proven reliability and validity in previous studies. A power analysis had been used to determine if the sample size had sufficient power to detect Type II errors.

Chapter 4

Findings

This study addressed three major research questions:

1) What are the differences in levels of clinical practice anxiety between third year baccalaureate nursing students in CBL and those in traditional curricula?

2) What is the relationship between trait anxiety and the levels of anxiety experienced by students in the clinical practice setting?

3) To what extent do sample characteristics such as age, gender, and total hours of study per week influence clinical practice anxiety?

The objectives of this study were to: 1) determine the levels of anxiety experienced by third year nursing students in the clinical practice setting; 2) examine the relationship between trait anxiety and the levels of anxiety experienced by students in the clinical setting; 3) examine the relationship between levels of anxiety and certain sample characteristics; and 4) compare student levels of anxiety in a CBL curriculum with those in a traditional curriculum.

Students groups in this study represented those coming from a context-based learning (CBL) curriculum and a traditional lecture-based curriculum. Results of analysis are presented in the following manner: 1) demographic characteristics and clinical experience (both prior and current); 2) research question number one; 3) research question number two; 4) research question number three; and 5) thematic analysis of an open-ended question.

CBL Group

There were 53 students in the CBL group who participated in the survey, representing 27.6 % of all students enrolled into third year acute care and psychiatric mental health clinical courses in fall 2007. The majority of respondents (94.3 %) were female, ranging in age from 18 to greater than 25, with the majority of students (75 %) in the 18-23 age range, and 25 % in the age range of 24 or older (Table 1). All respondents were enrolled as fulltime students at the time of the survey. Based on curricular design, the students in the CBL group were involved solely in clinical practice for a 6-week block, requiring them to be on the clinical units four times per week.

Prior to their current clinical placement (Table 2), the majority of students had previous clinical practice in maternal/newborn care (84.9 %), community health (73.6 %), geriatric/long-term care (73.6 %), and general surgery (54.7 %). Respondents also indicated that they had previous clinical experience in public health (49.1 %), general medicine (43.4 %), operating/recovery room (28.3 %), home care (20.8 %), psychiatric mental health (5.7 %), emergency care (3.8 %), pediatrics (1.9 %), and 'other' (18.9 %). Students who selected the category labeled as 'other' were asked to specify previous area(s) of practice. Responses included the following clinical specialties: gynecology surgery, palliative/sub acute, orthopedic surgery, and rural. At the time of the survey, the majority of students were placed in psychiatric/mental health (37.7 %), general surgery (34 %), or general medicine (26.4 %); 'other' accounted for only one out of 53 (1.9 %) of the remaining responses (Table 3).

In response to a question about the number of hours devoted to study per week, the majority of students (62.3 %) indicated that they studied more than five hours per week, while 20.8 % studied 4-5 hours per week, 15.1 % studied 2-3 hours per week, and 1.9 % studied 0-1 hour per week (Table 1).

In a question that asked students to choose all preferred learning methods, the majority (90.6 %) indicated that clinical experience was a highly preferred learning method along with lecture (75.5 %) and independent study (64.2 %). Fewer students chose discussion group (37.7 %), group projects (13.2%), and other (1.9 %) as preferred learning methods (Table 4). Responding to a question about sources of psychological support (Table 4), the majority of students indicated that they turned to peers (92.5 %), along with spouse or significant other (77.4 %), parents (75.5 %), multiple sources (11.3 %), and 'other' (17 %).

Traditional Group

There were 42 students in the traditional group who responded to the survey, representing 40.7 % of all students enrolled into third year acute care and psychiatric mental health clinical courses in fall 2007. As with the CBL group, the majority of respondents were female (90.5 %), ranging in age from 18 to greater than 25. Students in the 18-23 age group accounted for 64.3 % of all responses; the remaining 35.7 % were in the 24 or older category (Table 1). All students were enrolled in fulltime study at the time of the survey. Based on curricular design, students in the traditional group were taking lecture courses concurrently with clinical practice throughout a full 13-week term and were required to be in clinical practice two times per week.

Prior to their current clinical placement (Table 2), the majority of respondents in the traditional group had worked in psychiatric mental health (90.5 %), general medicine (85.7 %), and general surgery (66.7 %). Additional previous clinical placements included geriatric/long term care (26.2 %), operating/recovery room (21.4 %), community health (14.3 %), maternal/newborn (14.3 %), home care (9.5 %), pediatrics (9.5 %), oncology

(9.5 %), rehabilitation (7.1 %), critical/intensive care (4.8 %), and public health (2.4 %). There were 10 respondents (23.8 %) who selected 'other' as a category and cited the following clinical practice areas: burns and plastics, vascular surgery, orthopedics, neurology, renal, cardiology, and palliative care. At the time of the survey, 52.4 % of respondents were in community health placements, 21.4% were in pediatrics, 14.3 % in maternal/newborn, 7.1% in general surgery, 2.4 % in critical/intensive care, and 2.4 % in public health (Table 3).

In response to a question about the number of hours devoted to study per week, 71.4 % indicated that they studied more than 5 hours per week, while 11.9 % studied 4-5 hours per week, and 16.7 % of respondents studied 2-3 hours per week (Table 1). The majority of students (92.9 %) preferred clinical experience as a learning method along with lectures (73.8 %), and independent study (64.3 %). Fewer students chose discussion group (28.6 %), group projects (19 %), and other (2.4 %) as preferred learning methods (Table 4). When asked about sources of psychological support, the majority of students in the traditional group (81 %) chose peers along with parents (66.7 %), spouse or significant other (54.8 %), multiple sources (21.4 %), and other (21.4 %).

Comparison of CBL and Traditional Groups

A chi-square analysis revealed that there were no statistically significant differences between the groups in relation to age, hours of study, preferred learning methods or gender. There were, however, a number of statistically significant differences between the groups in relation to their previous clinical experience (Table 2). A greater proportion of students in the traditional group (85.7 %) had previous experience in general medicine than did students the CBL group (43.4 %). Differences between the groups achieved statistical significance on this item using a chi-square analysis ($\chi^2 = 17.83$, df = 1, $p<.01$). There were also a greater proportion of students in the traditional group (90.5%) who had worked in psychiatric mental health ($\chi^2 = 68.71$, df = 1, $p<.01$, than did students in the CBL group (5.7%). The difference in the number of students who had previous clinical experience in rehabilitation was also found to be statistically significant ($\chi^2 = 3.91$, df = 1, $p < .05$. In the traditional group, 7.1% of the students had worked in rehabilitation while none of the students in the CBL group had previous experience in rehabilitation.

There were a greater number of students in the CBL group (73.6%) who had previous experience in community health ($\chi^2 = 33.05$, df = 1, $p<.01$), than did those in the traditional group (14.3 %) . Differences between the groups were also noted for maternal/newborn ($\chi^2 = 46.99$, df = 1, $p<.01$), where 84.9 % of the students in the CBL group indicated that they had worked in maternal/newborn in comparison with 14.3 % in the traditional group.

A greater number of students in the traditional group (9.5%) had worked in oncology ($\chi^2 = 5.27$, df = 1, $p<.05$), than did students in the CBL group (0%). A greater number of students in the CBL group (73.6 %) had worked in geriatric/long term care ($\chi^2 = 21.11$, df = 1, $p<.01$ than did students in the traditional group (26.2%). Public health postings also differed significantly between the two groups ($\chi^2 = 25.09$, df = 1, $p<.01$), where 49.1 % of the students in the CBL had previous experience in public health compared with 2.4 % in the traditional group. A chi-square analysis revealed that there were no statistically significant differences between the groups for the areas of pediatrics, emergency, home care, general surgery, operating room, critical/intensive care, and 'other'.

A chi-square analysis was also used to compare the proportions of students in various clinical practice settings during the time of the survey. Analysis revealed that were marked differences in the proportions of students placed in each of the areas. In the CBL group, there were 26.4 % in general medicine, 37.7 % in psychiatric mental health, 34 % in general surgery, and 1.9 % in other areas. In the traditional group, there were 7.1 % in general surgery, 14.3 % in maternal/newborn, 2.4 % in critical/intensive care, 2.4 % in public health, 52.4 % in community health, 21.4 % in pediatrics and 2.4 % who chose 'other'. Differences between the groups were statistically significant using a chi-square analysis ($\chi^2 = 84.58$, df = 8, $p<.01$).

A chi-square analysis of students' psychological supports (Table 4) revealed that there was a statistically significant difference between the groups in relation to spouse or significant other ($\chi^2 = 5.44$, df = 1, $p = 0.02$). A larger proportion of students in the CBL group (77.4 %) looked to spouse or significant other as a source of psychological support when compared with the traditional group (54.8 %). Other sources of psychological support such as parents, peers, multiple sources, and 'other' did not achieve statistical significance using a chi-square analysis with an alpha of <.05.

Table 1

Student Characteristics

Characteristic		CBL Group (n=53) f(percent)	Traditional Group (n=42) f(percent)
Gender	Female	50 (94.3%)	38 (90.5%)
	Male	3 (5.7%)	4 (9.5%)
Age in years	18-23	40 (75%)	27 (64.3%)
	24 or >	13 (25%)	15 (35.7%)
Hours of study/week	0 - 1	1 (1.9%)	0.0
	2 - 3	8 (15.1%)	7 (16.7%)
	4 - 5	11 (20.8%)	5 (11.9%)
	>5	33 (62.3%)	30 (71.4%)

Table 2

Previous Clinical Experience

	CBL(n=53) f(percent)	Traditional (n=42) f(percent)
General Medicine	23(43.4%)**	36(85.7%)**
Pediatrics	1(1.9%)	4(9.5%)
Psychiatric/Mental Health	3(5.7%)**	38(90.5%)**
Rehabilitation	0.0*	3(7.1%)*
Emergency	2(3.8%)	0.0
Home Care	11(20.8%)	4(9.5%)
Community Health	39(73.6%)**	6(14.3%)**
General Surgery	29(54.7%)	28(66.7%)
Maternal/Newborn	45(84.9%)**	6(14.3%)**
Oncology	0.0*	4(9.5%)*
Operating Room	15(28.3%)	9(21.4%)
Critical/Intensive Care	0.0	2(4,8%)
Geriatic/Longterm Care	39(73.6%)**	11(26.2%)**
Public Health	26(49.1%)**	1 (2.4%)**
Other	10(18.9%)	10(23.8%)

Statistically Significant Results Using Pearson Chi-Square *p<.05 **p<.01

Table 3

Current (Most Recent) Area of Clinical Practice

CBL Group (n = 53)	Frequency	Percent
General Medicine	14	26.4%
Psychiatric Mental Health	20	37.7%
General Surgery	18	34%
Other	1	1.9%

Traditional Group (n = 42)	Frequency	Percent
General Surgery	3	7.1%
Community Health	22	52.4%
Pediatrics	9	21.4%
Maternal/Newborn	6	14.3%
Critical/Intensive Care	1	2.4%
Public Health	1	2.4%

Table 4

Preferred Learning Methods	CBL (n=53) f (%)	Traditional (n=42) f (%)
Clinical experience	48(90.6%)	39(92.9%)
Discussion group	20(37.7%)	12(28.6%)
Lecture	40(75.5%)	31(73.8%)
Independent Study	34(64.2%)	27(64.3%)
Group projects	7(13.2%)	8(19%)
Other	1(1.9%)	1(2.4%)
Sources of Psychological Support		
Spouse or significant other	41(77.4%)*	23(54.8%)*
Parents	40(75.5%)	28(66.7%)
Peers	40(92.5%)	34(81%)
Multiple sources	6(11.3%)	9(21.4%)
Other	9(17.0%)	9(21.4%)

Statistically Significant Results using Pearson Chi-Square *p<.05

Levels of Anxiety Experienced by Students in CBL and Traditional Curricula

(Research Question 1)

A two-tailed independent t-test did not reveal a statistically significant difference between the CBL and traditional groups on S-Anxiety scores ($t = 0.66$, $df = 92$, $p = 0.51$). The mean scores and standard deviations for each of the groups on the S-Anxiety scale are summarized in Table 5. Using the combined data set (CBL and traditional), the mean S-Anxiety score was 46.24 with a standard deviation of 11.27 (Table 5).

A two-tailed independent t-test also showed no statistically significant differences between the CBL and traditional group on T-Anxiety scores ($t = 1.27$, $df = 90$, $p = 0.21$). The mean scores and standard deviations for each of the groups on the T-Anxiety scale are summarized in Table 5. The mean T-Anxiety score for the combined group was 45.15 with a standard deviation of 10.17 (Table 5).

A two-tailed independent t-test comparing groups means on CEAF scores did not reveal a statistically significant difference between the groups ($t = 0.79$, $df = 63.32$, $p = 0.43$). Individual group means and standard deviations for the CEAF are summarized in Table 5. The mean CEAF score for the combined group was 52.55 with a standard deviation of 9.78 (Table 5).

Using the merged data set, S-Anxiety, T-Anxiety, and CEAF scores were all found to be statistically significantly correlated using Spearman's rank order correlation (Table 6). Total S-anxiety scores and total T-Anxiety scores were found to be highly correlated ($r_s = 0.80$, $p <.01$). Total S-Anxiety and total CEAF scores were also moderately, positively correlated ($r_s = 0.46$, $p < 0.001$), as were total T-Anxiety and CEAF scores ($r_s = 0.54$, $p < 0.01$).

Table 5

Measures of Central Tendency for Total S-Anxiety/Total T-Anxiety/Total CEAF Scores

	CBL Group (n = 53)					Traditional Group (n = 42)					Combined Group	
	N	Min	Max	Mean	SD	N	Min	Max	Mean	SD	Mean	SD
S-Anxiety	53	21	64	45.57	10.39	41	20	68	47.12	12.39	46.24	11.27
T-Anxiety	53	23	62	44.00	9.60	39	22	68	46.72	10.82	45.15	10.17
Total CEAF	52	35	69	51.81	8.02	39	28	76	53.54	11.78	52.55	9.78

Table 6

Statistically Significant Correlations Between Total S-Anxiety/Total T-Anxiety/Total CEAF Scores for Combined Groups

Scale	**Correlation Coefficient**	**Significance**
Total S-Anxiety/Total T-Anxiety	$r_s = 0.80$**	0.00
Total S-Anxiety/Total CEAF	$r_s = 0.46$**	0.00
Total T-Anxiety/Total CEAF	$r_s = 0.54$**	0.00

Statistically Significant Correlations Between Total S-Anxiety/Total T-Anxiety/Total CEAF Scores for Individual Groups

Scale	**Correlation Coefficient CBL**	**Significance**	**Correlation Coefficient Traditional**	**Significance**
Total S-Anxiety/Total T-Anxiety	$r_s = 0.74$**	0.00	$r_s = 0.87$**	0.00
Total S-Anxiety/Total CEAF	$r_s = 0.44$**	0.00	$r_s = 0.44$**	0.01
Total T-Anxiety/Total CEAF	$r_s = 0.51$**	0.00	$r_s = 0.56$**	0.00
	**p<.01	**p<0.01		

Spearman's rank order correlation was used to compute correlations between S-Anxiety and T-Anxiety scores for each of the study groups. Analysis revealed that S-Anxiety and T-Anxiety scores were highly correlated and statistically significant for both groups with correlation coefficients of $r_s = 0.74$ ($p<.01$) in the CBL group and $r_s = 0.87$ ($p<.01$) in the traditional group (Table 6). S-Anxiety scores and CEAF scores were moderately, positively correlated with correlation coefficients of $r_s = 0.44$ ($p<.01$) in the CBL group and $r_s = 0.44$ ($p <.01$) in the traditional group (Table 6). Correlations between total T-Anxiety scores and CEAF scores (Table 6) were also statistically significant in the CBL group ($r_s = 0.51$, $p<.01$) and in the traditional group ($r_s = 0.56$, $p <. 01$).

A Chi-Square analysis was used to test the null hypothesis that there were no statistically significant differences between the CBL and traditional group in of the proportions of students in the low, moderate, and high categories of the S-Anxiety, T-Anxiety, and CEAF scales (Table 7). Cut points at the 25th percentile and the 75th percentile for the combined data set (CBL and traditional) were used to determine the categories of low, moderate, and high state anxiety in this study. The following ranges of scores defined the categories for low, moderate, and high state anxiety: 20-37 (low state anxiety); 38-55 (moderate state anxiety); and 56-68 (high state anxiety). Based on the parameters established for this study, in the CBL group there were 13 scores (24.5 %) in the category of low state anxiety, 32 scores (60.4 %) in the category of moderate state anxiety, and 8 (15.1 %) in the category of high state anxiety (Table 7).

Table 7

Comparison of Proportions of Students in Low, Moderate, and High Anxiety Categories

S-Anxiety	20-37 (low anxiety) **f(%)**	38-55 (moderate anxiety) **f(%)**	56-68 (high anxiety) **f(%)**
CBL	13(24.5%)	32(60.4%)	8(15.1%)
Traditional	10(24.4%)	19(46.3%)	12(29.3%)

T-Anxiety	22-37 (low anxiety) **f(%)**	38-51 (moderate anxiety) **f(%)**	52-68 (high anxiety) **f(%)**
CBL	14(26.4%)	29(54.7%)	10(18.9%)
Traditional	9(23.1%)	17(43.6%)	13(33.3%)

CEAF	28-47 (low anxiety) **f(%)**	48-59 (moderate anxiety) **f(%)**	60-76 (high anxiety) **f(%)**
CBL	13(25%)	30(57.7%)	9(17.3%)
Traditional	10(25.6%)	17(43.6%)	12(30.8%)

In the traditional group, there were 10 scores (24.4 %) in the category of low state anxiety, 19 scores (46.3 %) in the moderate state anxiety category, and 12 (29.3 %) scores in the high state anxiety category (Table 7).

Using cut points at the 25th percentile and the 75th percentile for the combined data set, categories of low, moderate, and high trait anxiety in this study were defined by the following ranges: 22-37 (low trait anxiety); 38-51 (moderate trait anxiety); and 52-68 (high trait anxiety). Based on the parameters established for this study, in the CBL group there were 14 students (26.49 %) in the category of low trait anxiety, 29 students (54.7 %) in the category of moderate trait anxiety, and 10 students (18.9 %) in the category of high trait anxiety. In the traditional group, there were 9 students (23.1 %) in the category of low trait anxiety, 17 (43.6 %) in the category of moderate trait anxiety, and 13 (33.3 %) in the category of high trait anxiety (Table 7).

Cut points at the 25th percentile and the 75th percentile for the combined data set were used to determine the categories of low, moderate, and high CEAF anxiety in this study. The following ranges of scores defined the categories for low, moderate, and high anxiety in CEAF scores: 28-47 (low clinical practice anxiety); 48-59 (moderate clinical practice anxiety); and 60-76 (high clinical practice anxiety). In the CBL group, there were 13 students (25%) in the category of low clinical practice anxiety, 30 (57.7 %) in the category of moderate clinical practice anxiety, and 9 (17.3 %) in the category of high clinical practice anxiety. In the traditional group, there were 10 students (25.6 %) in the category of low clinical practice anxiety, 17 students (43.6 %) in the category of moderate clinical practice anxiety, and 12 students (30.8 %) in the category of high clinical practice anxiety (Table 7).

A Chi-Square analysis revealed that there were no statistically significant differences between the proportions of students in the categories of low anxiety, moderate, and high anxiety for the S-anxiety scale ($\chi^2 = 3.02$, df = 2, p = 0.22), the T-Anxiety scale ($\chi^2 = 2.54$, df = 2, p = 0.28), and the CEAF ($\chi^2 = 2.61$, df = 2, p = 0.27); therefore, the null hypothesis could not be rejected.

State (S-Anxiety) Scale

CBL Group

In the CBL group, all respondents (n = 53) completed the S-Anxiety portion of the questionnaire. The range of scores on the S-Anxiety scale for this group was 21-64, with a mean score of 45.56 and a standard deviation of 10.39 (Table 5). The range of mean scores for individual items on the S-Anxiety scale was 1.66 – 2.72 (Table 8).

In the CBL group, the highest mean score on the S-Anxiety scale was 2.72 (SD = 0.66) for scale item 'I feel at ease', with a combined total of 64.1% of students answering 'somewhat' (54.7 %), or 'not at all' (9.4 %), indicating that the majority of students did not feel at ease. The second highest mean score was on S-Anxiety item 'I am relaxed' (M = 2.68, SD = 0.83), with a combined total of 60.4 % of students answering 'somewhat' (45.3 %), or 'not at all' (15.1 %), indicating that students did not feel relaxed. The third highest mean score was for S-Anxiety item 'I am tense' (M = 2.57; SD = 0.87), with a combined total of 50.9 % of students answering 'moderately so' (35.8 %) or 'very much so (15.1 %), and 'I feel strained' (M = 2.57, SD = 0.77) with a combined total of 50.9 % of students answering 'moderately so' (39.6 %) or 'very much so' (11.3 %). The lowest mean score on the S-Anxiety scale was 1.66 (SD = 0.78) for item 'I feel frightened', where a combined total of 84.9 % of students answered 'not at all' (50.9 %)

or 'somewhat' (34 %), indicating that the majority of students would not use the term 'frightened' to describe how they were feeling at the time of the survey.

Traditional Group

In the traditional group, 41out of 42 students (97.6 %) completed the S-Anxiety scale. The range of total scores on the S-Anxiety Scale for this group was 20-68, with a mean score of 47.12 and a standard deviation of 12.39 (Table 5). The range of mean scores for individual S-Anxiety scale items was 1.66 – 2.76 (Table 8).

In the traditional group, the highest mean score obtained on the S-Anxiety scale was 2.76 (SD = 0.66) for S-Anxiety scale item ' I feel at ease', where a combined total of 68.3 % of students responded with 'somewhat' (58.5 %) or 'not at all' (9.8 %). The second highest mean score on the S-Anxiety scale (M = 2.71) was for S-Anxiety items 'I feel strained' (SD = 0.96), where a combined total of 51.2 % of students chose 'moderately so' (24.4 %) or 'very much so' (26.8 %), and 'I am relaxed' (SD = 0.78), where a combined total of 60.9 % of students chose 'somewhat (46.3 %) or 'not at all' (14.6 %). The third highest mean score was found on S-Anxiety item 'I feel calm' (M = 2.59, SD = 0.71), where a combined total of 56.1 % of students responded with 'somewhat' (48.8 %) or 'not at all' (7.3 %). The lowest mean score obtained on the S-Anxiety scale was for the item ' I feel frightened' (M = 1.66, SD = 0.76), where 82.9 % of students responded with 'not at all' (51.2 %) or 'somewhat' (31.7 %).

Table 8

Comparison of Highest and Lowest Mean Scores for Individual S-Anxiety Scale Items

S-Anxiety Item	CBL Group		S-Anxiety Item	Traditional Group	
	Mean	SD		Mean	SD
I feel at ease	2.72	0.66	I feel at ease	2.76	0.66
I am relaxed	2.68	0.83	I am relaxed	2.71	0.78
I am tense	2.57	0.87	I feel strained	2.71	0.96
I feel strained	2.57	0.77	I feel calm	2.59	0.71
I feel frightened	1.66	0.78	I feel frightened	1.66	0.76

Higher scores indicate greater anxiety based on weighted scoring

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	CBL Group	Traditional Group
Range in Mean Scores for Individual S-Anxiety Items	1.66 - 2.72	1.66 - 2.76

Trait (T-Anxiety) Scale

CBL Group

All students in the CBL group (n = 53) completed the T-Anxiety scale. The range of scores for the CBL group on the T-Anxiety scale was 23-62, with a mean score of 44 and a standard deviation of 9.59 (Table 5). The range of mean scores on individual T-Anxiety scale items in the CBL group was 1.34 – 3.17 (Table 9).

In the CBL group, the highest individual mean score obtained on the T-Anxiety scale was 3.17 (SD = 0.70) was for the item 'I feel rested', with a combined total of 83.1 % of students choosing 'sometimes' (49.1 %) or 'almost never' (34 %), indicating that students disagreed with that particular statement. The second highest mean scores on the T-Anxiety scale (M = 2.74) were for items 'I am calm, cool, and collected' (SD = 0.71), with a combined total of 62.3 % of students responding with 'sometimes' (49.1 %) or 'almost never' (13.2 %), and 'I make decisions easily' (SD = 0.66), where a combined total of 66 % of students responded with 'sometimes (56.6 %) or 'almost never' (9.4 %). The third highest mean score on the T-Anxiety scale (M = 2.45, SD = 0.85) was for item 'I get in a state of tension or turmoil as I think over my recent concerns and interests', with 49.1% of students responding with 'sometimes' and a combined total of 41.5% of students responding with 'often' (28.3 %) or 'almost always' (13.2 %). The lowest mean score found on the T-Anxiety scale was 1.34 (SD = 0.52) for item ' I have disturbing thoughts', with a combined total of 98.1 % of students responding with 'almost never' (67.9 %) or 'sometimes' (30.25 %).

Table 9

Comparison of Highest and Lowest Mean Scores for Individual T-Anxiety Items

T-Anxiety Item	**CBL Group**		T-Anxiety Item	**Traditional Group**		
	Mean	SD		Mean	SD	
I feel rested	3.17	0.70	I feel rested	3.03	0.81	
I make decisions easily	2.74	0.66	I make decisions easily	2.72	0.79	
I am "calm, cool, and collected"	2.74	0.71	I am "calm, cool, and collected"	2.69	0.73	
I get in a state of tension...	2.45	0.85				
I have disturbing thoughts	1.34**	0.52	I have disturbing thoughts	1.72**	0.76	0.01

Statistically significant result based on an independent two-tailed t-test **p<.01

Higher scores indicate greater anxiety based on weighted scoring

Range in Mean Scores for Individual T-Anxiety Items		1.34 - 3.17		1.72 - 3.03

Traditional Group

Thirty-nine out of forty-two students (92.8 %) in the traditional group completed the T-Anxiety scale. The range of raw scores for the traditional group was 22-68, with a mean score of 46.72 and a standard deviation of 10.82 (Table 5). The range in mean scores for individual T-Anxiety items was 1.72 – 3.03 (Table 9). In the traditional group, the highest individual item mean score on the T-Anxiety scale was 3.03 (SD = 0.81) for item 'I feel rested', with a combined total of 74.4 % of students responding with 'sometimes' (43.6 %) or 'almost never' (30.8 %). The second highest mean score on the T-Anxiety scale was 2.72 (SD = 0.79) for item 'I make decisions easily', with a combined total of 61.6 % of students responding with 'sometimes' (46.2 %) or 'almost never' (15.4%). The third highest mean score (M = 2.69; SD = 0.73) was for item 'I am calm, cool, and collected', with a combined total of 64.1% of students responding with 'sometimes' (53.8 %) or almost never (10.3 %). The lowest T-Anxiety mean score (M =1.72; SD = 0.76) was for item 'I have disturbing thoughts', with a combined total of 82.1 % of students responding with 'almost never' (46.2 %) or sometimes (35.9 %).

Disturbing Thoughts

In the CBL group, there was only 1 student (1.9%) who chose the response 'often' for T-Anxiety item ' I have disturbing thoughts', while there were 7 students (17.9 %) in the traditional group who chose the response 'often' for this scale item. An independent t-test with a level of significance set at $p<.05$ (Table 9) revealed a statistically significant difference between group means on this scale item ($t = 2.69$, $df = 62.98$, $p<.01$). In the CBL group, the only student choosing the response 'often' for T-Anxiety item ' I have disturbing thoughts' was a female respondent in the age category of 20-21. It was hypothesized that students giving this item a higher rating could be identifying with theory previously learned in a mental health clinical placement; however, this respondent did not have prior clinical experience in psychiatry. S-Anxiety, T-Anxiety, and total CEAF scores for this respondent were in the upper end of the moderate range.

In the traditional group, six of the seven students who chose the response 'often' for T-Anxiety item 'I have disturbing thoughts' were female. Four out of the seven respondents were in the over-24 age category, while the remaining three respondents were in the 20-21 age category. Five out of the seven students had previous clinical experience in psychiatry. In this group, individual S-Anxiety scores ranged from 54-58, with five of the scores falling into the category of high state anxiety. Individual T-Anxiety scores ranged from 50-68, with six of the scores falling into the category of high trait anxiety. Individual scores on the CEAF ranged from 55-72, with five out of seven scores falling into the category of high clinical practice anxiety.

Clinical Experience Assessment Form (CEAF)

CBL group

In the CBL group, 52 out of 53 (98 %) of students completed the CEAF. The scores ranged from 35-69, with a mean score of 51.8 and a standard deviation of 8.01 (Table 5). The range of mean scores for individual CEAF items was 2.21- 4.15 (Table 10). The highest mean score for the CBL group (Table 11) was for CEAF item 'fear of making mistakes' (M = 4.15, SD = 0.80), with a combined total of 78.9% of students choosing 'agree' (40.4 %) or strongly agree (38.5 %). The second highest mean score was for CEAF item "being observed by instructors" (M = 4.04, SD = 0.86), with a combined total of 76.9 % of students responding with 'agree' (44.2 %) or 'strongly agree' (32.7 %). The third highest mean score was for CEAF item 'initial clinical experience on the unit' (M = 4.02, SD = 0.92), with a combined total of 76.9 % of students responding with 'agree' (44.2 %) or 'strongly agree' (32.7 %). The lowest mean score for the CBL group was for CEAF item "patient's a.m. care" (M = 2.21, SD 1.02), with a combined total of 67.3 % of students choosing 'strongly disagree' (26.9 %) or disagree (40.4%).

Traditional Group

In the traditional group, 39 out of 42 (92.8%) students completed the CEAF. The scores ranged from 28-76, with a mean total score of 53.54 and standard deviation of 11.78 (Table 5). The standard deviation for total CEAF scores (SD = 11.77) for the traditional group indicated a greater variability in scores than those found in the CBL group (SD = 8.02). In the traditional group, the range in mean scores for individual scale items on the CEAF was 2.46 to 4.08 (Table 10).

Table 10

Comparison of CBL and Traditional CEAF Scores

CEAF Item	CBL Group (% of students)					Traditional Group (% of students)				
	Disagree	Neutral	Agree	Mean	SD	Disagree	Neutral	Agree	Mean	SD
Talking to Patient	67.30	21.20	11.50	2.19	0.95	53.80	23.10	23.10	2.59	1.31
Talking with Patient's Family	28.80	26.90	44.20	3.19	1.03	28.20	17.90	53.80	3.33	1.26
Reporting to Team Leader	36.50	23.10	40.40	3.04	1.01	33.30	23.10	43.60	3.18	1.21
Talking with Physicians	11.50	21.20	67.30	3.73	0.89	17.90	30.80	51.30	3.59	1.21
Asking Questions of Faculty	40.40	40.40	19.20	2.75	0.81	38.50	28.20	33.30	2.87	1.26
Evaluation by Faculty	15.40	11.50	73.10	3.79*	0.96	25.60	23.10	51.30	3.28*	1.12
Patient Teaching	42.30	28.80	28.80	2.75	1.01	33.30	15.40	51.30	3.13	1.22
Procedures, i.e. Injections	42.30	25.00	32.70	2.85*	1.07	23.10	20.50	56.40	3.41*	1.16
Hospital Equipment, i.e. IV Pump	34.60	26.90	38.50	3.02	1.02	20.50	28.20	51.30	3.36	1.04
Fear of Making Mistakes	1.90	19.20	78.80	4.15	0.80	7.70	17.90	74.40	4.08	0.96
Patient's A.M. Care	67.30	17.30	15.40	2.21	1.02	56.40	17.90	25.60	2.46	1.12
Availability of Instructor	34.60	30.80	34.60	3.06	1.06	20.50	41.00	38.50	3.28	0.92
Initial Clinical Experience on the Unit	5.80	17.30	76.90	4.02	0.92	5.10	15.40	79.50	4.05	0.92
Beforehand In-Hospital Preparation	30.80	19.20	50.00	3.27	1.05	28.20	30.80	41.00	3.18	1.14
Being Observed by Instructors	5.80	17.30	76.90	4.04	0.86	12.80	20.50	66.70	3.87	1.11
Being Late	23.10	15.40	61.50	3.75	1.45	15.40	15.40	69.20	3.87	1.26

Scores > 3 = anxiety

*p<.05

Range in Mean Scores				2.21- 4.15					2.46 - 4.08	

Table 11

Comparison of Highest and Lowest Scores for Individual CEAF Items

CEAF Item	**CBL Group**			**Traditional Group**	
	Mean	SD		Mean	SD
Fear of Making Mistakes	4.15	0.80	Fear of Making Mistakes	4.08	0.96
Being Observed by Instructors	4.04	0.86	Initial Clinical Experience...	4.05	0.92
Initial Clinical Experience on the Unit	4.02	0.92	Being Observed by Instructors	3.87	1.11
			Being Late	3.87	1.26
Patient's A.M. Care	2.21	1.02	Patient's A.M. Care	2.46	1.12
Higher scores indicate greater anxiety					
Range in Mean Scores for Individual CEAF Items	2.21 - 4.15			2.46 - 4.08	

In the traditional group, the highest mean score (Table 11) was for CEAF item 'fear of making mistakes' (M = 4.08, SD = 0.96), with a combined total of 74.3 % of students choosing 'agree' (33.3 %) or 'strongly agree' (41 %). The second highest mean score (M = 4.05, SD = 0.92) was for CEAF item 'initial clinical experience on the unit', with a combined total of 79.5 % of students choosing 'agree' (46.2 %) or 'strongly agree' (33.3 %). The third highest mean scores for the CEAF were found on item' being observed by instructors" (M = 3.87, SD = 1.11), with a combined total of 61.7 % of students choosing 'agree' (30.8 %) or 'strongly agree' (35.9 %), and item 'being late' (M = 3.87, SD = 1.26), having a combined total of 69.2% of students choosing 'agree' (28.2%) or 'strongly agree' (41%). The lowest mean score was for CEAF item "patient's a.m. care" (M = 2.46, SD = 1.12) with a combined total of 56.4 % of respondents choosing 'strongly disagree" (23.1 %) or 'disagree' (33.3 %).

Patient Teaching

There were differences between the CBL group and the traditional groups for individual CEAF item mean scores. In the CBL group, the mean score for CEAF item "patient teaching" was 2.75 (SD = 1.01), indicating lower levels of anxiety associated with patient teaching than those found in the traditional group, whose mean score was 3.13, with a standard deviation 1.22 (Table 10). This difference, however, was not statistically significant based on a two-tailed independent t-test with the level of significance set at p< .05 (t = 1.62, df = 89, p = 0.11).

Procedures

For CEAF item 'procedure, i.e. injections' (Table 10), the mean score for the CBL group was significantly lower (M = 2.85, SD = 1.07) than that of the traditional group

(M = 3.41, SD = 1.16) and achieved statistical significance in an independent t-test with the level of significance set at p<.05 (t = 2.40, df = 89; p = 0.02).

For CEAF item 'evaluation by faculty' (Table 10), the mean score for the CBL group (M = 3.79, SD = 0.96) was higher than in the traditional group (M = 3.28; SD = 1.12) and achieved statistical significance in a two–tailed independent t-test with the significance level set at p<.05 (t = -2.32, df = 89, p = 0.02).

Relationship Between T-Anxiety and Clinical Practice Anxiety (Research Question 2)

Spearman's rank order correlation was used to compute correlations between total T-Anxiety and total CEAF scores for each of the groups. Correlations between T-Anxiety and total CEAF scores were found to be statistically significant in both groups (Table 6). In the CBL group, total T-Anxiety scores and total CEAF scores were moderately, positively correlated ($r_s = 0.51$; $p<.01$). Total T-Anxiety scores and total CEAF scores were also moderately, positively correlated for the traditional group ($r_s = 0.56$, $p<.01$). Using Spearman's rank order correlation, the correlation coefficient for total T-Anxiety and total CEAF raw scores for the merged data set was $r_s = 0.54$ with $p<.01$.

According to Spielberger et al. (1983), individuals with high trait anxiety are more inclined to respond with higher elevations of state anxiety in situations involving interpersonal relationships or where self-esteem is threatened. To further examine how students with high trait anxiety in this study rated clinical situations involving interpersonal relationships, individual responses were analyzed for the following CEAF items: 1) talking to patient; 2) talking with patient's family; 3) reporting to team leader; 4) talking with physicians; 5) asking questions of faculty; 6) evaluation by faculty; 7) patient teaching; 8) initial clinical experience on the unit; and 9) being observed by instructors.

CBL Group

In the CBL group, there were 10 out of 53 respondents (18.9%) whose total T-Anxiety scores fell into the category of high trait anxiety (Table 7). For CEAF item 'talking to patient', only 1 out of 10 responses (10%) was greater than the neutral score of three, suggesting that even students with high trait anxiety do not find communicating one to one with their patients as anxiety provoking. CEAF item 'talking with patient's family' was rated as being more anxiety provoking with 6 out of 10 respondents (60 %) choosing a response that was greater than three. For CEAF item 'reporting to team leader', there were 4 out of 10 responses (40%) that were greater than three. CEAF item 'talking with physicians' was rated as more anxiety provoking than previous items, with 7 out of 10 respondents (70 %) having responses that were greater than three. For CEAF item ' asking questions of faculty', only 3 out of 10 (30 %) respondents in the CBL group chose responses greater than three, suggesting that the majority of students with high trait anxiety did not find asking questions of faculty to be anxiety provoking. CEAF item 'evaluation by faculty' had the highest number of overall responses greater than 3, with 10 out of 10 (100%) high trait anxiety students finding that evaluation by faculty was anxiety provoking. CEAF item 'patient teaching' was found to be anxiety provoking for 5 out of 10 (50 %) of respondents. For CEAF item 'initial clinical experience on the unit', 9 out of 10 respondents (90 %) provided responses that were greater than three, indicating that those students with high trait anxiety perceive orientation to a new clinical unit as threatening. CEAF item 'being observed by instructors' was found to be anxiety provoking for the 9 out of 10 of the respondents with high trait anxiety (90 %).

Traditional Group

In the traditional group, there were 13 out 39 respondents (33 %) in the category of high trait anxiety (Table 7). For CEAF item 'talking to patient', 5 out of 13 (38.4 %) respondents provided responses that were greater than three. CEAF item 'talking with patient's family' was found to be more anxiety provoking, with 10 out of 13 respondents (76.9 %) providing responses that were greater than three. For CEAF item 'reporting to team leader', there were 7 out of 13 responses (53.8%) that were greater than three. CEAF item 'talking with physicians' was found to be anxiety provoking for the majority of students with high trait anxiety, with 10 out of 13 responses (76.9 %) being greater than three.

In the traditional group, 7 out of 13 responses (53.8 %) were greater than three for CEAF item 'asking questions of faculty'. CEAF item 'evaluation by faculty' was found to be anxiety provoking for some, with 6 out of 13 students (46.1 %) providing responses that were greater than three. CEAF item 'patient teaching' was found to be anxiety provoking for 10 out of 13 students (76.9 %) with high trait anxiety. 'Initial clinical experience on the unit' was found to be anxiety provoking for the majority of students with high trait anxiety, with 11 out of 13 responses (84.6 %) being greater than three. For CEAF item ' being observed by instructors', there were 8 out of 13 students (61.5 %) whose responses were greater than three.

To further examine the relationship between trait anxiety and clinical practice anxiety, hierarchical regression was used to determine the amount of variance in total CEAF scores that could be attributed to trait anxiety. Data analysis revealed that T-Anxiety was a significant predictor of the variance in CEAF scores ($R^2 = 27.5$, $t = 5.81$, $p < .01$). In this study, the higher the trait anxiety score the more likely a student was to perceive clinical practice situations as anxiety provoking.

Relationship Between Demographic Variables, Hours of Study, and Clinical Practice Anxiety

(Research Question 3)

Using the merged data set, correlations between age and S-Anxiety ($r_s = 0.02$, $p = 0.85$), age and T-Anxiety ($r_s = 0.08$, $p = 0.46$), and age and CEAF ($r_s = -0.05$, $p = 0.63$) were not statistically significant. Correlation between hours of study and T-Anxiety was not statistically significant ($r_s = 0.18$, $p = 0.09$). Correlation between hours of study and CEAF was also not statistically significant ($r_s = -0.02$, $p = 0.86$). Correlation between hours of study and S-Anxiety ($r_s = 0.21$, $p = 0.04$), however, was found to be statistically significant (Table 12).

Age/Gender/Hours of Study

Data analysis revealed that there was a modest positive correlation between age and mean T-Anxiety score (Table 12) in the CBL group ($r_s = 0.30$, $p = 0.04$); however, correlation between age and mean T-Anxiety was not statistically significant in the traditional group. In the CBL group, 8 out of 10 (80%) of respondents whose T-Anxiety scores were categorized as high anxiety (52-68) were in the 18-23 age range. There were no statistically significant correlations between age and CEAF mean scores in the CBL group ($r_s = -0.68$, $p = 0.63$) or the traditional group ($r_s = -0.08$, $p = 0.63$).

An independent t-test comparing mean CEAF scores for males and females using the merged data set did not achieve statistical significance ($t = -1.58$, $df = 89$, $p = 0.12$). In the CBL group there were only three male respondents (5.7%) and in the traditional group there were only four male respondents (9.5%); therefore, the limited number of male respondents in this study did not allow for meaningful comparison of CEAF mean scores between males in the two groups.

The correlation between hours of study and total S-Anxiety score was positively correlated ($r_s = 0.29$) and statistically significant ($p = 0.03$) in the CBL group (Table 12). Students whose S-Anxiety scores were in the range of high state anxiety (56-68) comprised 8 out of 53 total respondents (15.1 %) in the CBL group. Of those students in the high state anxiety group, 6 (75 %) spent more than five hours studying per week. The remaining 2 (25 %) spent 4-5 hours studying per week. Hours of study and S-Anxiety scores were not statistically significantly correlated in the traditional group ($r_s = 0.10$, $p = 0.53$).

Correlation between hours of study and T-Anxiety score (Table 12) was statistically significant in the CBL group ($r_s = 0.35$, $p = 0.01$) but not in the traditional group ($r_s = -0.68$, $p = 0.68$). In the CBL group, respondents in the high T-Anxiety group demonstrated considerable variation in their hours of study per week with 5 out of 14 (35.7 %) respondents studying 2-3 hours per week, 4 out of 14 respondents (28.5 %) studying 4-5 hours per week, and 5 out of 14 respondents (35.7 %) studying more than five hours per week. Correlations between hours of study and CEAF scores were not statistically significant in the CBL ($r_s = 0.01$, $p = 0.97$) or in the traditional group ($r_s = -0.07$, $p = 0.68$).

Hierarchical regression was used to determine the amount of variance in total CEAF scores attributed to age and total hours of study (Table 13). In step one of the regression equation, demographic variables such as age, and hours of study per week were added as predictor variables since were both were found to be statistically significantly correlated with trait anxiety. Data analysis revealed that these predictor variables accounted for only 2 % of the variance in CEAF scores for the combined CBL and traditional group (Table 13). In step two of the regression equation, T-Anxiety scores were added as a predictor variable. Data analysis revealed that T-Anxiety was a significant predictor of variance in CEAF scores ($R^2 = 27.5$, $t = 5.81$, $p<.01$).

Table 12

Statistically Significant Correlations Between Hours of Study and Total S-Anxiety/Total T-Anxiety Scores

Scale	**Correlation Coefficient**	**Significance**
	CBL	
Hours of Study/Total S-Anxiety	$r_s = 0.30$*	0.03
Hours of Study/Total T-Anxiety	$r_s = 0.35$**	0.01
	Combined Group	**Significance**
Hours of Study/Total S-Anxiety	$r_s = 0.21$*	0.04

Statistically Significant Correlations Between Age and Total T-Anxiety

	Correlation Coefficient	**Significance**
	CBL	
Age/Total T-Anxiety	$r_s = 0.30$*	0.03

Using Spearman's Rank Order Correlation *$p<0.05$ **$p < 0.01$

Table 13

Hierarchical Regression

Predictor	**R**	**R Square**	**Adjusted R**	**Significance**
Age	0.10	0.01	0.00	0.37
Age + Hours of Study	0.11	0.01	-0.01	0.60
Age + Hours of Study + T-Anxiety	0.54	0.30	0.27	0.00**

**p<.01

Coefficients

Model 1	**Beta**	**t**	**Significance**
Age	-0.10	-0.91	0.37
Model 2			
Age	-0.10	-0.94	0.35
Hours of Study	0.05	0.46	0.65
Model 3			
Age	-0.14	-1.59	0.12
Hours of Study	-0.01	-0.08	0.93
Trait Anxiety	0.54	5.93	0.00**

**p<.01

Content Analysis of Open-Ended Question

Students were asked to identify the most anxiety-provoking aspect of clinical practice in an open-ended question at end of the survey. Ninety-eight percent of the students in the CBL group (n = 52), and 92.8% (n = 39) of the students in the traditional group answered the open-ended question. Following a content analysis, five main themes emerged: 1) interpersonal relationships with faculty; 2) lack of confidence in skill performance or knowledge base; 3) interpersonal relationships with unit staff; 4) fear of making mistakes; and 5) clinical preparation. Other, less prominent themes, included workload and time management on the clinical unit, communication with physicians, relationships with peer group, fear of the unknown, being late, communication, and balancing school with other commitments.

Interpersonal Relationship with Clinical Faculty

The most prominent theme that emerged in the open-ended question was interpersonal relationships with clinical faculty. There were 22 out of 52 (42 %) responses in the CBL group, and 14 out of 39 (36%) responses in the traditional group related to interpersonal relationships with clinical faculty, suggesting that students in both groups found interactions with faculty to be anxiety provoking.

Within this theme, comments were categorized into one of the following three categories: 1) perception of negative or unhelpful interactions with faculty; 2) lack of constructive feedback from faculty; and 3) evaluation by faculty.

Negative or Unhelpful Interaction with Faculty

There were a number of responses that illustrated the anxiety that students experience when they perceive their clinical instructor to be unsupportive or intimidating. One student from the CBL group addressed this issue with the following comment:

> "Having an instructor that is very unapproachable and is very strict. Ex. It is hard to learn in an environment where you are scared to ask questions."

Some students in the traditional group also found interactions with faculty to be anxiety provoking, with one of the students remarking:

> "Can't please my instructor no matter what I do."

Lack of constructive feedback

Students in both groups expressed a need to receive constructive feedback from faculty. One student from the CBL group expressed concern about a lack of timely feedback:

> "Instructors not giving enough ongoing feedback about how I perform in clinical situations but waiting until midterm or final evaluation to give feedback."

A student in the traditional group remarked that it was anxiety provoking when faculty or other nurses focused on the negative aspects of student performance rather than on the positives:

> "Nurses or instructors who are reluctant to provide further help and are good at picking negatives rather than discovering positives from students"

Observation/Evaluation by Faculty

Students from both groups found observation or evaluation by faculty to be anxiety provoking.

One student from the CBL group commented on how unnerving it was to have faculty observe one to one care with a patient:

> " Evaluation from instructor and when the instructor is watching everything that you are doing. I do very well with patients one on one and when my instructor appears, I get tense and wonder if I am doing everything right by her standards."

Similar comments were noted in the traditional group, where one student addressed feelings of vulnerability:

> "Feeling vulnerable, judged by the instructor."

Lack of Confidence in Skill Performance/Knowledge Base

The second most prominent theme was that of students' perceived lack of confidence in their knowledge base and in their ability to competently perform essential skills in the practice setting. This issue was identified by 10 out of 52 (19.2%) of the respondents in the CBL group and 9 out of 39 (23%) of the respondents in the traditional group, suggesting that students equate level of clinical skill performance with competence as a nurse. It was noted that there was some overlap in both groups in the comments regarding a lack of confidence in skill performance and knowledge base. Furthermore, students did not differentiate betweens the term 'skills' and the term 'procedures'; therefore, it was difficult to ascertain if they were using the terms interchangeably.

Skill performance

One student in the CBL group commented:

> "Not feeling prepared for a new nursing skill I learned and then having to do it for the first time."

Similarities were also noted in the traditional group where one student commented:

> "Not having the confidence level in certain procedures and messing up in front of patients."

Knowledge Base

There were fewer students in the CBL group (11.5%) who commented on a lack of confidence in their knowledge base when compared with students in the traditional group (17.9%). A student in the CBL group had the following comment regarding lack of confidence in knowledge base:

> "Doing anything with a patient when the family is in the room watching and them asking you questions about what you are doing."

A student in the traditional group made the following comment:

> " The fear of lack of knowledge when talking to primary RN, making critical decisions about pt., general feeling of not know[ing] enough information."

Interpersonal Relationships with Unit Staff

The third most prominent theme was that of interpersonal relationships with unit staff. In the CBL group, 7 out of 52 students (13.5%) addressed this issue in the open-ended question, while 8 out of 39 students (21%) of the students in the traditional group found this aspect of clinical practice to be anxiety provoking. Within this theme, students identified three main concerns: 1) negative interactions with staff members; 2) observation or evaluation by staff members; and 3) initial experience on a new clinical unit.

Negative Interactions with Staff Members

Students from both groups provided examples of dissatisfaction with the attitudes of clinical unit staff towards them as learners; however, in the traditional group there were a greater number of students who cited specific examples of belittling or critical behaviors. One respondent from the traditional group remarked:

> "I have been physically sick from anxiety in clinicals mainly because I feel we don't get enough experience from school and are thrown to the wolves, the staff nurses I find usually don't want to help you they want to criticize you."

One student from the CBL group commented:

> "Working with staff members who are in dire need of retiring (i.e. negative personalities)."

Observation or evaluation by staff members

Students in both groups indicated that being observed or having their performance critiqued by other members of the health care team was anxiety provoking. For example, one student in the CBL group remarked:

> "Nurses on the unit that constantly have a comment about something I am doing…I am doing it wrong…I should do it this way or that way etc. and this has led to some confusion.

One student in the traditional group referred to other members of the health care team as 'authority figures' and provided the following comment:

> "Performing clinical skills with patients under evaluation or even just supervision by the instructor or any authority figure (i.e. doctor, other RNs); especially for the first time, but also subsequent times.

Initial Experience on a New Clinical Unit

Orientation to a new unit was also identified as challenging with respect to fitting in and finding acceptance from unit staff. One student from the CBL group commented:

> " New clinical site, which brings new staff, patients, and dynamics that a student does not yet fit in."

One student from the traditional group commented:

> "Initially getting used to routines on a new unit".

Fear of Making Mistakes

The fourth most prominent theme was that of fear of making mistakes. In the open-ended question, four out of 52 students (7.6 %) in the CBL group, and seven out of 39 students (18 %) in the traditional group identified that they were afraid of making mistakes that may cause harm to a patient or may interfere with their ability to successfully pass the course. Comments from the CBL group included:

> "Fear of making mistakes that can be harmful to a patient"
> "Worrying that one mistake will affect my ability to pass or fail the course."

Responses from the traditional group included:

> "Mistakes or reporting mistakes."
> "Being nervous about making a mistake, not catching something important when doing an assessment that could be bad for patients."

Clinical Preparation

The fifth most prominent theme was related to the anxiety that is produced when students perceive that clinical preparation is interfering with sleep, or when it is difficult to balance course assignments with the shift work component of clinical practice. Seven out of 52 students (13.4%) in the CBL group, and one out of 39 students (2.6%) in the traditional group identified preparatory work as the most anxiety-provoking aspect of clinical practice, suggesting that some students in the CBL group find clinical preparation somewhat more anxiety provoking than students in the traditional group.

Students in the CBL group made a greater number of comments describing how the amount of required pre-clinical preparation was interfering with their ability to get adequate rest. Some of their comments included:

> "The time commitment of preparing for clinical, doing a clinical shift, writing papers after a shift, and all the work that goes into that."

> "High turnover of patients and having to do much patient research most nights after working 8 hours on the unit."

One student in the traditional group commented:

> "Getting homework i.e. reflection journals done on time (by deadline)."

Summary of Qualitative Analysis

The most pervasive theme for both sample groups in the open-ended question was that of interpersonal relationships with faculty. Students identified intimidation and lack of support from faculty as anxiety provoking aspects of clinical practice. Students also expressed fears about being observed or evaluated by faculty.

The second most commonly identified theme in the open-ended question was a lack of confidence in skill performance or knowledge base. Further analysis revealed that there was a trend towards a greater number of students in the traditional group expressing a lack of confidence in knowledge base or skill performance.

The third, fourth and fifth most commonly cited themes were interpersonal relationships with unit staff, fear of making mistakes, and clinical preparation. It was noted that a greater number of students in the CBL group who expressed frustration with the amount of time spent on clinical preparation than did students in the traditional group.

Summary of Findings

A total of 53 students in the CBL group and 42 students in the traditional group participated in this study. The majority were female students enrolled in fulltime study. The range in age for both the CBL and traditional group was from 18 to 25 or older, with the largest number of respondents for both groups in the 20-21 age range.

The majority of respondents in both groups indicated that they devoted more than five hours per week to study. Clinical experience was the most highly preferred learning method for both groups, with lecture and independent study also favored learning methods. Sources of psychological support were quite similar for both groups; however, a chi-square analysis revealed that a larger percentage of students in the CBL group chose spouse or significant other as a source of psychological support.

Previous clinical experience varied significantly between the CBL and traditional group and was statistically significant using a series of chi-square analyses with an alpha level of $p<.05$. At the time of the survey, respondents in the CBL group were in general medicine placements (26.4%), general surgery placements (34 %), and psychiatric mental health placements (37.7%). In the traditional group, 52.4% of respondents were in a community health rotation, with the remainder in pediatrics (21.4%), maternal/newborn (14.3%), general surgery (7.1%), critical care (2.4 %), and public health (2.4 %). Based on a chi-square analysis, differences between the groups on clinical practice placements at the time of the study were statistically significant.

There were statistically significant correlations found between hours of study and

S-Anxiety and T-Anxiety scores in the CBL group. Correlation between hours of study and total S-Anxiety score was also statistically significantly correlated for the combined group. There was no relationship between age or gender and clinical practice anxiety

Baseline S-Anxiety, T-Anxiety and CEAF scores for the CBL group and traditional group did not achieve statistically significant differences on a two-tailed, independent t-test. Total S-Anxiety, T-Anxiety and CEAF scores were moderately, positively correlated and statistically significant for both the CBL group and traditional group.

Analysis of individual CEAF items revealed some statistically significant differences between the groups in independent two-tailed t-tests. In the CBL group, students identified CEAF item 'evaluation by faculty' as more anxiety provoking than did the traditional group. The traditional group identified CEAF item ' procedures, i.e. injections' as more anxiety provoking than did the CBL group.

Both the CBL and traditional group identified CEAF item 'fear of making mistakes' as the most anxiety provoking aspect of clinical practice in the quantitative analysis. Similarly, CEAF item 'patient's a.m. care' was found to be the least anxiety provoking for students in both groups.

Responses to an open-ended question about the most anxiety-provoking situation in clinical practice revealed that students in both groups were anxious about interacting with clinical faculty. Lack of confidence in clinical skills or knowledge base along with interpersonal relationships with unit staff, fear of making mistakes, and clinical preparation were also cited as anxiety provoking for both groups

Overall, the two groups in this study were comparable in mean scores on each of the scales used in this study. Data analysis revealed that students from both traditional and

CBL curricula experience high levels of anxiety during clinical practice. Some of the differences between the group means on individual scale items may, potentially, be reflective of differences in curriculum design; however, the limited response rate did not allow for sufficient statistical power to reject the null hypothesis.

Chapter 5
Discussion

One of the aims of this study was to test the null hypothesis that there are no differences between the CBL and traditional groups in regards to clinical practice anxiety. Although there were statistically significant differences between the groups on individual scale items, previous and current clinical placements, and sources of psychological support, there were no statistically significant differences between the groups on demographic characteristics or mean total scores on the S-Anxiety, T-Anxiety and CEAF scales.

These findings are similar to those of Kim (1997) who reported that there were no significant differences in CEAF scores among a group of senior baccalaureate nursing students based on demographic characteristics such as gender, age, student status, having children and marital status. In a study by Kleehammer et al. (1990) comparing CEAF scores for junior and senior nursing students, junior students had higher scores on some individual CEAF items; however, female students comprised 98% of the sample group, which did not allow for comparison of gender differences on CEAF scores.

Analysis of the open-ended question in this study further supports the null hypothesis, as there were many similarities in responses from the two study groups. In the quantitative portion of the survey, there were also similarities between the groups in regards to the items that students ranked as being the most (or least) anxiety provoking. Furthermore, the differences between the groups on individual scale items may have been spurious and not truly reflective of actual differences between the groups.

In a systematic review of PBL in the clinical practice setting, Williams and Beattie, (2008) found that there was incongruence between how PBL was implemented in the classroom and how it was implemented in clinical practice. These authors found that proper utilization of PBL principles was dependent on clinicians' knowledge and interpretation of PBL teaching methods. Given that many clinicians may not be familiar with the PBL process of teaching and learning, in reality, clinical learning environments may not always differ significantly between PBL and more traditional forms of learning.

Other nursing researchers, however, have found that students in PBL (CBL) had greater perceptions of structural and psychological empowerment (Siu et al., 2005) and greater enjoyment of the learning process (Cook and Moyle, 2002; Rideout et al., 2002; Wilson, 1992), than did students in a traditional lecture-based program. According to Siu et al., students' perceptions of structural empowerment are positively correlated with psychological empowerment, lending credence to Kanter's theory that the structure of one's environment can influence performance. Given that students in PBL (CBL) may experience greater autonomy through small group work (Siu et al., 2005), it is reasonable to expect that these students may be more able to mitigate the effects of stressful situations by perceiving that they have more control over potential stressors. Furthermore, students in CBL utilize scenarios based on actual clinical practice situations in their small group work, which provides a context for learning that is grounded in real nursing practice (Williams, 2002). Having this context may reduce anticipatory anxiety by providing students with opportunities to apply theory to practice situations in a safe environment.

A comparative analysis revealed that both groups differed significantly in their previous clinical experiences. This may have also been a factor affecting the true equivalence of the groups, as clinical skill development may have differed in ways unknown to the researcher. Furthermore, based on a response rate of only 27.6% in the CBL group, study findings may not have been representative of the CBL group; therefore, a lack of statistically significant differences may have been due to the small sample size.

Age and Anxiety

The sample groups for this study were comparable in size and consisted mainly of female students who were enrolled in fulltime study. There were a greater number of students in the traditional group who were in the over 24 age group, suggesting, perhaps, that older students may seek out nursing programs having a more traditional style curriculum.

Age was statistically significantly correlated with T-Anxiety in the CBL group ($r_s = 0.292$; $p<.05$) but not in the traditional group in this study, indicating that older students in CBL group had slightly higher T-Anxiety scores. Further analysis revealed that 8 out of 10 (80%) of the students in the CBL group whose raw scores were categorized as having high trait anxiety were in the 18-23 age group. Spielbeger et al. (1983) examined the relationship between age and anxiety, finding that for both measures of anxiety (state and trait), working males and females over the age of 50 had lower anxiety scores than did younger co-workers.

In a study of 262 baccalaureate students, Pagana (1988) reported that age was statistically significantly negatively correlated with fear of inadequacy and fear of making mistakes. A one-way ANOVA (F = 4.95, p = 0.008) revealed that students in the older age group (26-49) had significantly less afraid of making mistakes than did younger participants.

A study by Hight (1996) comparing traditional nursing students (age less than 25) with non-traditional nursing students (age 25 or older) revealed that the non-traditional students had lower mean state and trait scores (M = 43.84, SD = 10.78) than did the traditional students (M = 45.97, SD = 12.50). There were also differences found in the relationship between mean state and trait anxiety scores and GPA. For students in the traditional group, both mean state anxiety scores (M = 54.0) and trait anxiety scores (M = 51.90) were highest for those students whose GPA was in the range of 2.0-2.49. For students in the non-traditional group, the highest mean state scores (M = 48.66) and highest mean trait scores (M = 45.65) were for students whose GPA was in the range of 2.5 – 2.99.

Although GPA was not one of the variables used in this study, it may be useful in future studies to further examine the relationship between anxiety and GPA. Given that fear of failure is a common characteristic of individuals with high trait anxiety (Spielberger, 1972), students with high trait anxiety having borderline GPAs may also experience higher levels of anxiety in clinical practice.

Psychological Support

Students in both the CBL and traditional group found peers to be a significant source of support during clinical practice. This finding seems reasonable since peers would most likely to be able to relate to the specific demands of the program. Respondents in both groups also found spouse or significant other, and parents to be good sources of psychological support. These research findings are consistent with those of Mahat (1998) and Shipton (2002) who found that nursing students sought social support from family and friends as coping strategies.

Preferred Learning Methods

Students in both groups in this study indicated that clinical practice was the preferred learning method, suggesting that they value hands-on experience in the practice setting as an integral component to building clinical expertise. Lectures were favored as a learning method by students in both groups, which is not a surprising finding given that this is the learning style that most students are accustomed to. Making the transition to PBL (CBL) can be difficult (Biley, 1999; Biley & Smith, 1998; Solomon & Finch, 1998) and perhaps some of the students in the CBL group preferred a more structured, teacher-centered approach rather an a student centered approach (Turunen, Taskinen, Voutilainen, Tossavainen, & Sinkkonen, 1997).

Hours of Study

The majority of students in both groups in this study indicated that they studied more than 5 hours per week, a finding that was supported by the responses to the open-ended question in the CBL group There was a statistically significant relationship ($p<.01$) between the number of hours of study and S-Anxiety in the CBL group ($r_s = 0.35$) and in the merged group ($r_s = 0.21$; $p <.05$). This finding was also supported by further analysis, which revealed that students in both groups with high S-Anxiety scores studied more than four hours per week. This finding appears to suggest that students with high state anxiety are more inclined to cope with feelings of anxiety about clinical practice by devoting more time to study.

Mean S-Anxiety Scores

Mean total scores for the S-Anxiety scale in the CBL group (M = 45.57, SD = 10.39) and the traditional group (M = 47.12, SD = 12.39), and combined group (M = 46.24; SD = 11.27) were considerably higher than those found by Spielberger et al. (1983) in a study of 855 college students. Spielberger et al. reported a mean score of 36.47 (SD = 10.02) for male students, and a mean score of 38.76 (SD = 11.95) for female students.

Hight (1996) reported a combined mean state anxiety score of 46.40 and a standard deviation of 12.50, which is similar to the mean S-Anxiety scores found in this study. In Bachman's (1998) study of community college nursing students (n = 78), S-Anxiety scores for the nursing students were also considerably higher than those found in studies of other undergraduate students.

To further examine how anxiety in nursing students compares with that of students in other health sciences disciplines, the researcher conducted a review of the medical literature on anxiety in medical students. Results from a systematic review by Dyrbye, Thomas, and Shanafelt (2006) suggested that there is a high incidence of depression and anxiety in medical students, which is higher than that found in the general population or peers of the same age. Moreover, the studies used in the review suggest that female medical students may demonstrate more psychological distress than male medical students.

In a 6-year longitudinal designed to study psychological changes in Turkish medical students, Aktekin et al. (2001) compared students from the faculties of medicine (n = 129), economics (n = 83), and physical education (n = 47). Researchers discovered that medical students' scores for 'stressful life events' demonstrated a significant increase in the second year. This increase was also found in the scores of economics students but not in the scores of physical education students. In the same study, baseline S-Anxiety and T-Anxiety were measured using the STAI. Mean scores for medical students on the S-Anxiety scale increased from 39.4 in year 1 to 42.3 in year 2, whereas students in the faculty of physical education saw a decrease in S-Anxiety scores from 39.0 in year 1 to 36.6 in year 2. Mean T-Anxiety score for medical students was 43.5 in year 1 and 46.8 in year 2, indicating some fluctuation in dispositional anxiety scores. Students in economics had a mean T-Anxiety score of 42.2 in year 1 and a mean T-Anxiety score of 45.3 in year 2. Students in the faculty of physical education had a mean T-Anxiety score of 46.5 in year 1 and a mean T-Anxiety score of 45.3 in year 2. The mean S-Anxiety and T-Anxiety scores in the study by Aktekin et al. were higher than those found by Spielberger et al. (1983) in a study of 855 college students; however, results must be interpreted with caution because comparison groups in the Turkish study differed significantly in size.

Comparison of S-Anxiety scores of nursing students in this study with studies of undergraduate students from other faculties may suggest that nursing students experience higher levels of state anxiety. This difference is likely due to a combination of factors including predominantly female enrollment along with the unpredictable nature of clinical practice where students are applying new skills to a vulnerable human population. Furthermore, the anxiety scores in this study were higher than those in some previous nursing studies, perhaps suggesting that nursing environments have become more stressful over time. Other nurse researchers have reported that there is a trend towards more stressful work environments caused by a diminished workforce that is now caring for higher acuity patients (Bowles & Candela, 2005), and an increased emphasis on cost-effective care (Garrett & McDaniel, 2001).

Mean T-Anxiety Scores

Mean scores on the T-Anxiety scale for both the CBL (M = 44; SD = 9.6) and traditional group (M = 46.72; SD = 10.82) were higher than those found by Spielberger et al. (1983). The mean T-Anxiety score for the combined group (CBL and traditional) in this study was 45.15 (SD = 10.17). Spielberger et al. reported a mean score for male college students (n = 324) as 38.30 with a standard deviation of 9.18; the mean score for female college students (n = 531) was 40.40 (SD = 10.15).

Findings in this study were consistent with findings in other nursing studies. Hight (1996) also reported a mean T-Anxiety score for the combined group of traditional and non-traditional baccalaureate nursing students (M = 43.15, SD = 10.36) as higher than those found by Spielberger et al. in their study of college students. In Kim's study of 61 senior baccalaureate-nursing students (1997), two thirds (n = 39) of the students in her sample achieved mean T-Anxiety scores in the category of mild anxiety, while the remaining one third (n = 22) were in the category of moderate anxiety, having an overall mean score for the group of 38 and a standard deviation of 9.59. Kim (2003) used the range of 20 to 40 as parameters for no or mild anxiety, and scores of 41 to 80 as parameters for moderate to high anxiety. The mean T-Anxiety score for participants in Kim's study was lower than the mean trait anxiety score found in the merged data set in this study (M = 45.15, SD = 10.17).

Chandavarker, Azzam, and Mathews (2006) conducted a cross-sectional study of medical students throughout four years of their program. Self-report methods were used to assess symptoms of obsessive-compulsive disorder, anxiety, attentional problems, depression, and perception of performance in medical school. The T-Anxiety scale of the STAI was used to measure students' baseline trait anxiety scores (n = 421) in each of the four years of the program. Results of this study indicated that students in the third year of the program had the highest mean T-Anxiety scores (M = 40.0, SD = 9.0) when compared with year 1 (M = 37.0, SD = 9.9), year 2 (M = 36.6, SD = 8.2), and year 4 (M = 36.1, SD = 8.6). Furthermore, female medical students were found to have slightly higher mean T-Anxiety scores (M = 38.3, SD = 9.4) than did their male counterparts (M = 36.0, SD = 8.1). T-Anxiety mean scores for first and second year medical students were lower in this study than those found by Aktekin (2001) in a study of Turkish medical students.

The variability in T-Anxiety scores for nursing students in this study and college students in other studies may reflect random differences in the dispositional anxiety of college students overall. The strong and positive correlation between S-Anxiety elevations and T-Anxiety scores in both groups in this study indicate that students found many aspects of the program to be anxiety provoking. Furthermore, students with high trait anxiety rated anxiety-provoking situations at a higher level than did students with lower trait anxiety.

Individual T-Anxiety Item Analysis

Students in both sample groups indicated that they did not feel rested. Using reversed scoring for anxiety-absent items, the mean score for individual T-Anxiety item 'I feel rested' was 3.17 (SD = 0.70) in the CBL group, and 3.03 (SD = 0.81) in the traditional group, and was the highest mean score on the T-Anxiety scale. This is consistent with findings by Kim (1997), who reported that 79 % of the students in her sample did not feel rested (M = 2.84; SD = 0.80).

In the qualitative portion of this study, students also commented on the perceived relationship between preparatory workload and sleep deprivation. Coupled with the fact that nursing students may also be doing shift work, it is not surprising that they would rate this item more highly. Furthermore, the autonomic nervous system arousal that occurs during anxiety provoking situations (Blonna, 2007; Spielberger, 1983) may also interfere with one's ability to rest. Given that a combined total of 75.5% of the students in the CBL group had S-Anxiety scores in the moderate range (60.4%) and high range (15.1%), and that a combined total of 75.5% of the students in the traditional group had S-Anxiety scores in the moderate range (46.3%) and high range (29.3%), it is possible that high state anxiety may have contributed to feelings of fatigue.

In this study, the second highest mean scores on the T-Anxiety scale were for the item 'I make decisions easily'. Using reversed scoring, the mean score in the CBL group was 2.74 (SD = 0.66), and 2.72 (SD = 0.79) in the traditional group. This item was also the third highest mean score (M = 2.13, SD = 0.67) on the T-Anxiety scale in Kim's study (1997), who also reported that 34% of the students in her sample did not make decisions easily.

Trait Anxiety and Clinical Practice Anxiety

The moderately strong positive correlation between T-Anxiety score and total CEAF scores ($r_s = 0.54$) suggests that dispositional anxiety influences student perceptions of anxiety-provoking situations in clinical practice. Hierarchical regression also revealed that trait anxiety was the best predictor of clinical practice anxiety.

In this study, students in the CBL group with high trait anxiety scores found observation and evaluation by faculty to be more threatening than did students with high trait scores in the traditional group. The reason for this difference may be due, in part, to a greater comfort level with the CBL process of problem-solving, critical thinking, and providing feedback in small groups rather than on an individual basis with faculty.

Students with high trait anxiety in the traditional group found patient teaching to be more anxiety provoking than high trait anxiety students in the CBL group. This is consistent with the finding that students in the traditional group displayed slightly less confidence in their knowledge base and in their ability to perform procedures than did students in the CBL group. This difference may be due to the reduced amount of hands-on practice time in traditional labs.

Comparison of Individual CEAF Items

The most anxiety producing situation in clinical practice for students in the both the CBL (M = 4.15, SD = 0.80) and traditional group (M = 4.08, SD = 0.96) was 'fear of making mistakes'. Kleehammer et al. (1990) and Kim (1997; 2003) also found that 'fear of making mistakes' produced high levels of anxiety for students. CEAF item 'initial clinical experience on the unit' produced higher mean scores for both the CBL and traditional group, a finding that is consistent with those of Kleehammer et al. (1990) and Kim (1997; 2003) who found this to be another one of the most anxiety producing aspects of clinical practice in their respective studies.

Kleehammer et al. (1990) proposed that a score of greater than three (neutral) on the CEAF scale indicates anxiety. Following an individual scale item analysis for the CEAF, there were 11 out of 16 mean scores in the CBL group that were at a level of greater than three, representing 68.8 % of the mean scores for individual CEAF items. In the traditional group, 13 out of 16 mean scores were greater than three, comprising 81.3 % of the mean scores for individual CEAF items. In a study of study of junior (n = 39) and senior (n = 53) nursing students by Kleehammer and colleagues, there were 8 out of 16 individual item mean scores that were greater than 3, comprising 50 % of the mean scores for individual CEAF items.

The higher scores on individual CEAF items for both the CBL and traditional groups in this study are closer to those found in the study by Kleehammer et al. (1990) than those found in Kim's 1997 study of senior baccalaureate nursing students (n = 61). In Kim's study, 5 out of 16 individual CEAF item mean scores were greater than three, comprising 31.25 % of the total mean scores. The reason for this difference is, perhaps, due to the fact that the students in Kim's study were senior nursing students whose additional clinical experience made clinical situations less threatening to them than it was for the junior students in the study by Kleehammer et al., or the third year nursing students in this study.

Interpersonal Relationships with Faculty

Of the five themes that emerged following analysis of an open-ended question about the most anxiety provoking aspect of clinical practice, factors associated with interpersonal relationship with the clinical tutor were cited with the greatest frequency in both groups. This aspect of clinical practice was also identified as being anxiety provoking in the quantitative portion of the survey, where CEAF scale item 'being observed by instructors' had the second highest individual mean score in the CBL group (M = 4.04, SD = 0.86) and the third highest individual mean score in the traditional group (M = 3.87, SD = 1.11). In the quantitative portion of the survey, a combined total of 73.1% of the students in the CBL group answered 'agree' (51.9%) or 'strongly agree' (21.2%) that this item was anxiety provoking. In the traditional group, a combined total of 51.3% of the students responded with 'agree' (41%) or 'strongly agree' (10.3%) in response to this item.

In the quantitative portion of the survey, CEAF item 'evaluation by faculty' was also found to be anxiety provoking. In the CBL group, the mean score for this item was 3.79 (SD = 0.96). In the traditional group, the mean score for this item was 3.28 (SD = 1.12). A two-tailed independent t-test revealed a statistically significant difference between the two groups on this item (t = -2.32, df = 89, p = 0.02). Several students commented on the discomfort associated with "being grilled on the spot" or "being questioned in front of a patient." These findings are consistent with findings by Kleehammer et al. (1990) in the qualitative portion of their survey and underscore the premise that students feel vulnerable in their role and are subject to intense feelings of anxiety during observation and evaluation by faculty.

CEAF item 'asking questions of faculty' had lower mean scores for both the CBL group (M = 2.75, SD = 0.81) and in the traditional group (M = 2.87, SD = 1.26) in this study, suggesting that students generally do not find asking questions of faculty to be threatening. CEAF item 'availability of instructor' produced mean scores just over the neutral point in this study. In the CBL group, the mean score was 3.06 (SD = 1.06). In the traditional group, the mean score for this item was 3.28 (SD = 0.92).

Of interest is the finding that in Kim's study (1997) comments about faculty behaviors were cited with the least frequency in the open-ended question, which contrasts the findings in this study. In the quantitative portion of Kim's study, the mean score for CEAF item 'being observed by instructors' was 3.56 (SD = 1.14), where 64 % of respondents agreed that being observed by faculty was anxiety-provoking. This finding suggests that this aspect of clinical practice was anxiety provoking for students in Kim's study even if they did not comment on this item the open-ended question. In the same study by Kim, the mean score for CEAF item 'evaluation by faculty' was 2.95 (SD = 1.13), and CEAF item 'asking questions of faculty' had a mean score of 2.49 (SD = 1.06), indicating that these aspects of interaction with faculty were perceived as being less threatening than observation by faculty.

Findings in the study by Kleehammer et al. (1990) were similar to those in this study, where comments related to negative interactions with faculty were cited with the greatest frequency in the open-ended question. Kleehammer et al. (1990) also found that CEAF items 'being observed by instructors' (M = 3.9, SD = 0.93) and 'evaluation by faculty' (M = 3.6, SD = 0.95) were highly anxiety producing for students even though there were no statistically significant differences between junior and senior nursing students with regards to mean scores for these two items.

In a study of 262 baccalaureate nursing students in their first medical-surgical clinical experience, Pagana (1988) found that 26 % of participants considered the clinical instructor to be a threat, referring to student descriptions of negative faculty characteristics such as being "intimidating, threatening, demeaning, impatient, strict, and demanding" (p.422). This is consistent with comments that emerged in the CBL and traditional group in this study and underscores the need for faculty to be more aware of how their behaviors are interpreted by students in the clinical setting.

Clinical faculty use questioning on a regular basis to assess student knowledge base and to promote critical thinking; however, may not be cognizant of how certain questioning strategies and non-verbal behaviors may evoke excessive anxiety in a student and interfere with the learning process. In her study of 229 junior and senior baccalaureate nursing students, Cook (2005) found that nursing students' perceptions of faculty characteristics such as personally and professionally inviting behaviors influenced state anxiety levels in the clinical practice setting. She noted that faculty behaviors such as talking down to students, being impolite, and treating students as if they were irresponsible increased state anxiety levels.

In Cook's study (2005), there was a statistically significant difference between junior and senior nursing students in how they rated the personally inviting teaching behaviors of clinical faculty. Junior students rated clinical faculty as having more personally and professionally inviting teaching behaviors than did the senior nursing students.

Lack of Confidence in Skill performance

Students from both groups found that they lacked confidence in their ability to perform skills. In the quantitative portion of the survey, the mean score for the CBL group was significantly lower (M = 2.85, SD = 1.07) than that of the traditional group (M = 3.41, SD = 1.16) for CEAF item "procedures, i.e. injections", which also achieved statistical significance in an independent t-test with the level of significance set at $p<.05$

(t = 2.40, df = 89; p =.02). These finding are similar to those found in studies by Kim (1997; 2003), Kleehammer et al. (1990), and Sheu, Lin, and Hwang (2002). Although individual item CEAF mean scores did not indicate that performing procedures was one of the three most anxiety-provoking situations in either group in the quantitative analysis in this study, the mean score on this item was greater than three in the traditional group, which is indicative of anxiety. Kim (1997; 2003) found uncertainty about clinical skills to be the most pervasive theme in a qualitative analysis of an open-ended question asking students to identify the most anxiety provoking aspect of clinical practice. Similarly, Pagana (1988) found that 77.1% of the 262 students in her study described feelings of inadequacy related to lack of knowledge and experience in the clinical practice setting.

Interpersonal Relationships with Unit Staff

The third most frequently cited comments in the qualitative portion of the survey were related to interpersonal relationships with unit staff. In the quantitative portion of the survey, the third highest mean score for the CBL group was for CEAF item 'initial clinical experience on the unit' (M = 4.02, SD = 0.92), with a combined total of 76.9 % of students responding that they 'agree' (44.2 %) or 'strongly agree' (32.7 %) that this item was anxiety provoking. For the same item, students in the traditional group gave it the second individual highest individual mean score on the CEAF (M = 4.05, SD = 0.92), with a combined total of 79.5 % of students choosing that they 'agree' (46.2 %) or 'strongly agree' (33.3 %) that this item was anxiety provoking. Students mentioned that unwelcoming behaviors, criticism, and lack of support from unit staff caused anxiety.

In a grounded theory study of 16 senior baccalaureate nursing students, Shipton (2002) identified the actions of nursing staff as major contributor to student stress in the clinical practice setting. One of the recommendations from her study included ensuring that students are well oriented to a new clinical unit. According to Shipton, faculty need to work collaboratively with nursing staff to facilitate communication, acquaint nursing staff with specific course learning objectives, and to reinforce the concept that faculty, staff and students are all part of the same team.

In this study, comments related to initial experience on a new clinical unit were categorized under interpersonal relationships with unit staff in the qualitative portion of the survey. Even though only two students in the CBL group and one student in the traditional group commented on this item, students in both groups had individual item mean scores of greater than four in the quantitative portion of the survey.

Fear of Making Mistakes

The fourth most commonly cited theme cited in the open-ended question was fear of making mistakes Although the frequency of comments related to fear of making mistakes was lower than expected in the open-ended question, in the quantitative portion of the survey, CEAF item 'fear of making mistakes', was found to have the highest individual mean score for both the CBL group (M = 4.15, SD = 0.80) and the traditional group (M = 4.08, SD = 0.96). This parallels the finding of Kleehammer et al. (1990) and Kim (1997; 2003) who also noted that fear of making mistakes produced the highest and second highest levels of anxiety, respectively, in the quantitative portion of their studies. This finding is not surprising given that students are working with patients who could suffer serious harm as the consequence of an error.

Preparation for Clinical Practice

The fifth most frequently cited response on the open-ended question was related to preparation for clinical practice. In the quantitative portion of the survey, mean scores for CEAF item 'beforehand in-hospital preparation' were just above the neutral point for both groups. In the CBL group, the mean score for this item was 3.27 (SD =1.05). In the traditional group, the mean score for this item was 3.18 (SD = 1.14). A two-tailed independent t-test did not reveal any statistically significant differences between the two groups on this CEAF item (t = -0.39, df = 89, p = 0.67).

A greater number of students in the CBL group identified clinical preparation as anxiety producing than did students in the traditional group. One of the reasons for this difference could be attributed to the fact that CBL (PBL) students find the search process they use to access learning resources as stressful and time-consuming (Solomon & Finch, 1998). Several respondents in the CBL group identified excessive workload, along with uncertainty about whether they were properly prepared for clinical practice as the most anxiety provoking aspect of clinical practice. Shipton (2002) also found that students cited clinical preparation such as preparing care plans and medication cards as a major stressor. Her recommendation was that clinical faculty should be aware of student workload and set realistic expectations for assignments.

Several findings in this study differed from those of Kim (1997; 2003) and Kleehammer et al. (1990), who used the same open-ended question asking students about the most anxiety provoking aspect of clinical practice. In the study by Kim, there were a number of respondents that cited interpersonal relationships with physicians (calling physicians, reporting to physicians about patients' conditions, and assisting physicians with procedures) as anxiety producing. In this study, there were only two students in the CBL group and one student in the traditional group who mentioned interactions with physicians in the open-ended question. In the quantitative portion of the survey in this study, the mean score for individual CEAF item 'talking with physicians' was 3.73 (SD = 0.89) in the CBL group. For the same CEAF item, in the traditional group, the mean score was 3.59 (SD = 1.21). This finding suggests that students in the CBL and traditional groups find talking to physicians somewhat anxiety provoking, but, perhaps not to the extent that it has in other nursing studies.

Summary

Nursing students in this study were comparable in terms of total state and trait anxiety scores as well as in their expression of which aspects of clinical practice they found to be most anxiety provoking. Although there were some differences between the two groups on individual CEAF items, only two of the items 'evaluation by faculty' and 'procedures, i.e. injections' were found to be statistically significant.

In an open-ended question asking students about the most anxiety-provoking situation in clinical practice, student in both groups identified that they felt threatened by interactions with faculty, especially in relation to observation and evaluation. Findings in this study are consistent with several other nursing research studies where students have indicated that interactions with nursing faculty can be especially intimidating and anxiety provoking. It was noted in this study that students in the CBL group tended to find this aspect of clinical practice more anxiety producing than did students in the traditional group.

In this study, students in both groups expressed a lack of confidence in skill performance and knowledge base; however, this finding was more prevalent in the traditional group in both the quantitative and qualitative portions of the analysis. Findings in this study are supported by other nursing research where it has been observed that nursing students frequently feel inadequate in their knowledge and skill in the practice setting.

Findings in this study regarding students' fear of making mistakes in clinical practice and negative interaction with staff on the clinical unit support other research findings in the nursing literature. Several nursing researchers have found these aspects of clinical practice can produce significant anxiety for nursing students.

S-Anxiety and T-Anxiety mean scores in this study were higher than those found in research with other undergraduate students; however, are similar to findings in other nursing students. In this study, T-Anxiety score demonstrated a strong positive correlation with CEAF scores and hierarchical regression revealed that trait anxiety was the best predictor of clinical practice anxiety.

Scope and Limitations of Study

A limitation of this study is that the sample groups could not be randomized. Therefore, it cannot be ruled out that differences between group scores may have been due to other pre-existing differences not accounted for by the independent variable. Use of a convenience sample may have increased the possibility of response bias where students who were feeling particularly anxious at the time of the study may have been more motivated to participate in the study. Furthermore, using sample groups of university students located in two different cities may have been influenced by demographic and geographic variables unknown to the researcher.

Generalizability of the study results will be limited to nursing students in year three of a baccalaureate nursing program. Given that this was a cross-sectional study it would not have detected potential differences between students in other years of the program. While there is evidence in the nursing literature of many commonalities in the types of stressors present throughout clinical experiences, there may be unique stressors present during years one, two, and four that may not be experienced by third year nursing students. Generalizability of study results was also compromised by a response rate of less than 50% at each of the sites.

Use of self-report methods may also affect the quality of the data. Using close-ended questions in the study questionnaire can create superficiality in participant responses, may introduce researcher bias, and could also preclude a potential range of responses that may have not have been considered by the researcher (Polit & Beck, 2004).

Respondents were limited to those having Internet access; however, this factor was anticipated to be minimally influential as university students routinely use the Internet and email for education related purposes. CBL students participating in the study required a CCID password that allowed them access to a secure Web CT site housing the link for the survey. Students in the traditional group received an email with an encrypted link connecting them to a secure website housing the survey.

Implication for Nursing Education

Findings in this study suggest that nursing students experience significant levels of anxiety during clinical practice. Given the unpredictable nature of the clinical environment, it is understandable that students would feel some measure of threat in performing skills outside the safety of a laboratory. Over time, however, high anxiety levels may impair learning and could potentially lead to significant mental health problems.

Shariff and Armitage (2004) studied the effects of psychological and educational counseling on reducing the effects of anxiety in nursing students. Using a quasi-experimental design, the researchers randomly assigned 100 second and fourth year nursing students to either a treatment (n = 50) or control group (n = 50). Those assigned to the treatment group received 12 weeks of anxiety reduction training on topics such as "anxiety, anxiety control, relaxation, breathing, assertiveness, worrying thoughts and rational and irrational beliefs, time management and study skills" (p.388). Study results showed that there were no statistically significant differences between the groups on pre-test and post-test anxiety scores at the time of the study; however, there were statistically significant differences between the groups ($p = 0.003$) using ANOVA for repeated measures in the follow-up after one semester. It was also noted that there was a statistically significant improvement in student self-esteem in the treatment group ($p<0.001$) and significant differences between pre-test and post-test GPA for the experimental group. Based on study results, the researchers in this study concluded that concepts associated with anxiety reduction training were beneficial in the long term for reducing anxiety, improving self-esteem, and improving GPA.

In a randomized controlled trial study of 93 nursing students in the UK, Kanji, White, and Ernst (2006) examined the effects of autogenic training on reducing anxiety in nursing students. In this study, students were randomly assigned to three groups: group A received autogenic training, group B received laughter therapy, and group C received no intervention. The STAI was used to measure state anxiety and trait anxiety scores before and after intervention. Study results showed that there was a statistically significant reduction in state anxiety ($p<0.001$) and trait anxiety ($p<0.001$) in the autogenic training group after the 2-month intervention period. There were also statistically significant changes in systolic BP ($p<0.01$) and diastolic BP ($p<0.05$), and pulse rate ($p<0.002$) in the treatment group. There were no differences between the groups on the Maslach Burnout Inventory. Researchers concluded that autogenic training was effective in reducing the effects of anxiety in the short-term.

Blonna (2007) examined stress management as it relates to an individual's overall well-being and described strategies for stress management within the context of physical, social, emotional, intellectual, spiritual and environmental health. According to Blonna, stress reduction techniques can improve physical health and increase one's capacity to cope with stressful events. Using Lazarus's Stress Appraisal and the National Wellness Institute's model as the two key theoretical frameworks, this author recommended the 5 R's of stress reduction (rethink, reduce, relax, release, and reorganize) as strategies to reduce stress. Similar to Kanji et al. (2006), this author examined the power of the mind-body connection and the positive effects of stress reduction training.

To best support students in rigorous and demanding program of study, faculty development should include strategies and tools to assist clinical tutors with assessing students for signs of psychological distress. Early intervention through psychological counseling may provide much needed support for students who are highly anxious. Given that the majority of students view their peers as a significant source of psychological support, peer support groups that address the specific concerns of nursing students may also be a valuable resource.

Nursing students learn valuable problem solving and critical thinking skills in their program that could be better utilized to build capacity for withstanding the rigors of clinical practice. A focus on stress management strategies throughout each year of the program may help to reinforce self-management techniques such as improved organization, positive thinking, cognitive reframing, and relaxation techniques to reduce the physiological and psychological effects of common stressors. Building internal resources through basic instructional techniques on how to manage the stresses of balancing a post-secondary education with other commitments may prove invaluable to helping students cope with anxiety.

Responses from students on the open-ended question in the survey indicate that students feel vulnerable during clinical practice and are very anxious about relationships with clinical faculty, particularly in relation to observation and evaluation. Perceptions of intimidating or unsupportive behaviors by clinical faculty is a common theme in the nursing literature and warrants a closer look at ways in which clinical faculty can provide the necessary formative and summative evaluation in a supportive and nurturing manner. Cook (2005) suggested that when clinical faculty share clinical experiences, show a sense of humor, are sensitive to the feelings of the students, and seem genuinely pleased to have the students in the clinical practice setting, students' state anxiety levels decrease. Cook also recommended was that faculty should be consciously aware of how their teaching behaviors can affect student levels of anxiety and should strive to incorporate more inviting behaviors into their teaching practice.

Analysis in this study also revealed that students with high levels of trait anxiety, in particular, find relationships with clinical faculty to be highly anxiety provoking. It may need to be reinforced with faculty that highly anxious students might use avoidance as a way of coping with their anxiety rather than a sign that these students lack of motivation to learn.

Clinical nursing faculty are in the best position to offer support to students in clinical practice. Knowing that students are indeed experiencing high levels of clinical practice anxiety should raise red flags about the health and well being these students. Strategies to assist students withstand the rigors of the program can come through variety of sources, both internal and external, with clinical faculty positioned to offer valuable guidance.

Implications for Future Research

More research is needed to determine if curricular differences have an impact on clinical practice anxiety. Although there were some differences between the groups in this study on individual scale items, there was insufficient statistical power to reject the null hypothesis.

A longitudinal study that provides data on all years of the program may be useful in determining if there are differences in the stressors found in each year of the program. Previous research has shown that junior nursing students experience higher levels of anxiety than senior nursing students; therefore, it would be worthwhile to measure anxiety levels using the same students at different points in the program.

Random sampling to reduce response bias may also provide some better insights into the anxiety levels experienced by nursing students overall. A larger sample that is more representative of the general population may produce different results than those obtained through this study.

Conclusion

Results from this comparative study showed that there were no significant differences between the levels of clinical practice anxiety experienced by nursing students in a CBL curriculum and nursing students in a traditional curriculum. These findings may have been the result of small samples sizes that did not provide adequate statistical power to detect differences between the groups. Additional research with larger samples is needed to compare the effects of curriculum philosophy and instructional practices on clinical practice anxiety in nursing students.

Students in both groups in this study had higher mean anxiety S-Anxiety and T-Anxiety scores than those found in studies of other undergraduate students; nevertheless, the higher anxiety scores are generally consistent with findings in other nursing research studies. Many of the study findings support other nursing research on anxiety-provoking situations in clinical practice and warrant a closer look at how faculty can best assess and support the anxious student during clinical practice. This research also raises the possibility that students can learn to become more stress and anxiety resistant by using the tools they have acquired throughout their nursing education. As educators, we play a vital role in helping students identify both external and internal resources that will not only help them to face the daily challenges in their education, but will promote empowerment, self-efficacy and optimism throughout their nursing career.

References

Albanese, M.A., & Mitchell, S. (1993). Problem-based learning: A review of the literature on its outcomes and implementation issues. *Academic Medicine, 68,* 52-81.

Aktekin, M., Karaman, T., Senol, Y.Y., Erdem, S., Erengin, H., & Akaydin, M. (2001). Anxiety, depression and stressful life events among medical students: a prospective study in Antalya, Turkey [Electronic version]. *Medical Education, 35,* 12-17.

Antepohl, W., & Herzig, S. (1999). Problem-based learning versus lecture-based learning in a course of basic pharmacology: a controlled, randomized study [Electronic version]. *Medical Education 33,* 106-113.

Bachman, M.L. (1998). Anxiety, critical thinking, and age as performance predictors in community college nursing students. (Doctoral dissertation, Colorado State University). Retrieved from ProQuest Digital Dissertations. (AAT 9921977).

Barnes, L. L. B., Harp, D., & Jung, W.S. (2002). Reliability generalization of scores on the Spielberger state-trait anxiety inventory [Electronic version]. *Educational and Psychological Measurement, 62*(4), 603-618.

Baruch, Y. (1999). Response rate in academic studies—A comparative analysis. *Human Relations, 54*(4), 421-438

Biley, F. (1999). Creating Tension: Undergraduate student nurse' responses to a problem-based learning curriculum [Electronic version]. *Nurse Education Today, 19,* 586-591.

Biley & Smith (1998). Exploring the potential of problem-based learning in nurse Education [Electronic version]. *Nurse Education Today, 18,* 353-361.

Blonna, R. (2007). Coping with stress in a changing world (4th ed.). New York, NY: McGraw-Hill.

Bowles, C., & Candela, L. (2007). First job experiences of recent RN graduates [Electronic version]. *Journal of Nursing Administration, 35*(3), 130-137.

Chandavarkar, U., Azzam, A., & Mathews, C.A. (2006). Anxiety symptoms and perceived performance in medical students [Electronic version]. *Depression and Anxiety, 24*, 103-111.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Cook, L.J. (2005). Inviting teaching behaviors of clinical faculty and nursing students' anxiety [Electronic version]. *Journal of Nursing Education, 44*(4), 156-161.

Cook, C., Heath, F., & Thompson, R.L. (2000). A meta-analysis of response rates in web or Internet-based surveys. *Educational and Psychological Measurement, 60*(6), 821-836.

Cook, M. & Moyle, K. (2002). Students' evaluation of problem-based learning. *Nurse Education Today, 22*, pp. 330-339.

de Kock, A., Sleegers, P., & Voeten, M.J.M. (2004). New learning and the classification of learning environments in secondary education. *Review of Educational Research, 74*(2), 141-170.

DeYoung, S. (1990). *Teaching nursing*. New York: Addison-Wesley Nursing (Chap. 1, p.4; Chap. 4, p. 74-92).

Driscoll, M.P. (2000). *Psychology of learning for instruction* (2nd ed., p. 23). Boston: Allyn and Bacon.

Driscoll, M.P. (2005). *Psychology of learning for instruction* (3rd ed.). Boston: Pearson. Allyn and Bacon.

Dyrbye, L.N., Thomas, M.R., & Shanafelt, T.D. (2006). Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Academic Medicine, 81*(4), 353-373.

Emilien, G., Durlach, C., Lepola, U. & Dinan, T. (2002). *Anxiety Disorders: Pathophysiology and Pharmacological Treatment* (pp. xv, Chap. 1, pp. 1, 10). Berlin: Birkhauser Verlag.

Gaudry, E., & Spielberger, C.D. (1971). *Anxiety and educational achievement*. New York:John Wiley & Sons Australasia Pty Ltd.

Garrett, D.K., & McDaniel, A.M. (2001). A new look at nurse burnout: The effects of environmental uncertainty and social climate [Electronic version]. *Journal of Nursing Administration, 31*(2), pp. 91-96.

Goetz, C. S. (1998). Are you prepared to s.a.v.e. your nursing student from suicide? [Electronic version]. *Journal of Nursing Education 37*(2), 92-95.

Groh, S.E., & Allen, D.E. (2001). Why problem-based learning: A case study of institutional change in undergraduate education. In B.J. Duch, S.E. Groh, & D.E Allen (Eds.). *The power of problem-based learning: a practical "how to" for teaching undergraduate courses in any discipline* Sterling, Virginia: Stylus Publishers.

Gwele, N.S., & Uys, L. R. (1998). Levels of stress and academic performance in baccalaureate nursing students [Electronic version]. *Journal of Nursing Education, 37*(9), 404-407.

Hight, L.J. (1996). A comparative study of anxiety levels in traditional and non-traditional undergraduate nursing students in Tennessee. (Doctoral Dissertation, University of Tennessee, 1996). Retrieved from ProQuest Digital Dissertations. (AAT 9633855).

Kanji, N., Whte, A., & Ernst, E. (2006). Autogenic training to reduce anxiety in nursing students: Randomized controlled trial. *Issues and Innovations in Nursing Education, 53*(6), 729-735.

Kanter, S.L. (1998). Fundamental concepts of problem-based learning for the new facilitator [Electronic version]. *Bulletin of the Medical Library Association, 86(*3), 391-395.

Kaufman, D.M., Day, V., & Mensink, D. (1998). Stressors in medical school: Relation to curriculum format and year of study [Electronic version]. *Teaching and Learning in Medicine, 10*(3), 138-144.

Kaufman, D.M., & Mann, K.V. (1999). Achievement of students in a conventional and problem-based learning (PBL) curriculum [Electronic version]. *Advances in Health Science Education, 4,* 245-260.

Kiessling, C., Schubert, B., Scheffner, D., & Burger, W. (2004). First year medical students' perceptions of stress and support: a comparison between reformed and traditional track curricula [Electronic version]. *Medical Education, 38,* 504-509.

Keith, C.L., & Schmeiser, D.N. (2003). Anxiety: What's in a word? [Electronic version]. *Nurse Educator, 28*(5), 202-203.

Kim, K.H.K. (1997). Perceived levels and sources of anxiety of senior nursing students in the clinical setting. (Doctoral Dissertation, University of Wisconsin-Milwaukee,1997. Retrieved from ProQuest Digital Dissertations. (AAT 9728603).

Kim, K.H.K. (2003). Baccalaureate nursing students' experiences of anxiety producing situations in the clinical setting. *Contemporary Nurse, 14*(2), 145-155.

Kirkland, M. S. (1998). Stressors and coping strategies among successful female African American baccalaureate students [Electronic version]. *Journal of Nursing Education, 37*(1), 5-12.

Kleehammer, K., Hart, A.L., & Keck, J.F. (1990). Nursing students' perceptions of anxiety-producing situations in the clinical setting. *Journal of Nursing Education, 29*(4), 183-187.

Knowles, M (1970). *The modern practice of adult education.* New York, NY: Association Press.

Ladoucer, M.G., Rideout, E.M., Black, M.E.A., Crooks, D.L., O'Mara, L.M. & Schmuck, M.L. (2004). Development of an instrument to assess individual student performance in small group tutorials [Electronic version]. *Journal of Nursing Education,* 43(10), 447-455

Last, L., & Fulbrook, P. (2003). Why do student nurses leave? Suggestions from a Delphi Study. *Nurse Education Today, 23*(6), 449-458.

Lazarus, R.S. & Averill, J.R. (1972). Emotion and cognition: with special reference to anxiety. In C. D. Spielberger (Ed.). *Anxiety: Current trends in theory and research (volume 2)* (pp. 241-270). New York; Academic Press.

Lindop. E. (1991). Individual stress among nurses in training: Why some leave while others stay. *Nurse Education Today11,* 110-129.

Lo, R. (2002). A longitudinal study of perceived level of stress, coping and self-esteem of undergraduate nursing students: an Australian case study [Electronic version]. *Journal of Advanced Nursing, 39*(2), 119-126.

Mahat, G. (1998). Stress and coping: Junior baccalaureate nursing students in clinical settings [Electronic version]. *Nursing Forum, 33*(1).

Moffat, K.J., McConnachie, A., Ross, S., & Morrison, J.M. (2004). First year medical student stress and coping in a problem-based learning medical curriculum. *Medical Education, 38,* 482-491.

Miller, S.K. (2003). A comparison of student outcomes following problem-based learning instruction versus traditional lecture learning in a graduate pharmacology course. *Journal of the American Academy of Nurse Practitioners, 15*(12), 550-556.

Pagana, K. (1988). Stresses and threats reported by baccalaureate students in relation to initial clinical experience. *Journal of Nursing Education, 27*(9), 418-424.

Polit, D. F., & Beck, C.T. (2004). *Nursing research: Principles and methods.* (7th ed.). Philadelphia: Lippincott Williams & Wilkins

Rankin, S.H., & Stallings, K.D. (2001). Patient education: *Principles and Practice.* (4th Ed.). Philadelphia: Lippincott.

Richardson, V. (2005). The diverse learning needs of students. In D.M Billings and J.A. Halstead (Eds), *Teaching in nursing: A guide for faculty* (2nd ed.)(pp. 21 – 39). St. Louis, MO: Elsevier Saunders.

Rideout, E. (2001). *Transforming nursing education through problem-based learning* Toronto: Jones and Bartlett Publishers.

Rideout, E., England-Oxford, V., Brown, B., Fothergill-Bourbonnais, F., Ingram, C., Benson, G., et al. (2002). A comparison of problem-based and conventional curricula in nursing education [Electronic version]. *Advances in Health Sciences Education, 7*, 3-17

Savin-Baden, M., & Major Howell, C.H. (2004). *Foundations of problem-based learning*. Berkshire, England: Open University Press

Sharif, F., & Armitage, P. (2004). The effect of psychological and educational counseling in reducing anxiety in nursing students [Electronic version]. *Journal of Psychiatric and Mental Health Nursing, 11*, 386-392.

Sheu, S., Lin, H., & Hwang, S. (2002). Perceived stress and physio-psycho-social status of nursing students during their initial period of clinical practice: the effect of coping behaviors [Electronic version]. *International Journal of Nursing Studies, 39*, 165-175.

Shipton, S.P. (2002). The process of seeking stress-care: coping as experienced by senior baccalaureate nursing students in response to appraised clinical stress [Electronic version]. *Journal of Nursing Education, 41*(6), 243-256.

Siu, H., Laschinger, H.K., & Vingillis, E. (2005). The effect of problem-based learning on nursing students' perceptions of empowerment. *Journal of Nursing Education, 44*(10), pp. 459-469.

Soloman, P., & Finch, E. (1998). A qualitative study identifying stressors associated with adapting to problem-based learning [Electronic version]. *Teaching and Learning in Medicine, 10*(2), 58-64.

Spielberger, C.D. (1966). The effects of anxiety on complex learning and academic achievement. In C.D. Spielberger (Ed.) *Anxiety and Behavior, (* pp. 361-396). NewYork, NY: Academic Press.

Spielberger, C.D. (1972). Current trends in theory and research on anxiety. In C. D. Spielberger (Ed.) *Anxiety: Current trends in theory and research (volume 1).* (pp.2-19). New York: Academic Press.

Spielberger, C.D. (1972, vol, 1). Anxiety as an emotional state. In C. D. Spielberger (Ed.) *Anxiety: Current trends in theory and research (volume 1).* (pp.23-49). New York, NY: Academic Press.

Spielberger, C. D. (1979). *Understanding stress and anxiety.* New York: Harper & Row.

Spielberger, C.D. (1983). State-trait anxiety inventory for adults. Redwood City, CA: Mind Garden

Spielberger, C.D., Gorusch, R.L., Lushene, R., Vagg, P.R., & Jacobs, G.A. (1983). *Manual for the State-Trait Anxiety Inventory: Form Y.* Palo Alto, CA: Consulting Psychologists Press.

Thomas, S.J. (2004). *Using web and paper questionnaires for data-based decision making: From design to interpretation of the results.* Thousand Oaks, CA: Corwin Press.

Timmins, F., & Kalizer, M. (2002). Aspects of nurse education programmes that frequently cause stress to nursing students—fact-finding sample survey. *Nurse Education Today, 22*, 203-211.

Tuckman, B.W. (1992). *Educational psychology: From theory to application*. New York: Harcourt, Brace, Jovanovich College Publishers.

Turunen, H., Taskinen, H., Voutilainen, U., Tossavainen, K., & Sinkkonen, S. (1997). Nursing and social work students' initial orientation towards their studies. *Nurse Education Today, 17*,67-71.

Van Hoozer, H.L. (1987). The teaching role of the professional nurse. In H.L. VanHoozer, B.D. Bratton, P.M. Ostmoe, D.Weinholtz, M.J. Craft, C.L. Gjerde, & M.A. Albanese (Co-Authors) *The teaching process: Theory and practice in nursing* (pp. 1-69). Norwalk, Connecticut: Appleton-Century-Crofts.

Vandeveer, M. & Norton, B. (2005). From teaching to learning: Theoretical foundations. In D.M. Billings and J.A Halstead (Eds) *Teaching in nursing: A guide for faculty* (2nd ed.)(pp. 231 – 281). St. Louis, MO: Elsevier Saunders.

Vernon, D.T.A. & Blake, R.L. (1993) Does problem-based learning work? A meta-analysis of evaluative research. *Academic Medicine, 68* (7), 550-563.

Williams, B. (2001). Developing critical reflection for professional practice through problem based learning. *Journal of Advanced Nursing, 34* (1), 27-34.

Williams, B. (2002). The self-directed learning readiness of baccalaureate students and faculty after one year in a problem based undergraduate nursing program. (Doctoral Dissertation, University of Alberta, 2002).

Williams, B. (2004). Self direction in a problem based learning program [Electronic version]. *Nurse Education Today, 24*, 277-285.

Williams, B., & Day, R. (2007). Context based learning. In L.E. Young & B. L. Paterson (Eds.), *Teaching Nursing: Developing a student centered learning environment*. (pp. 221-241). Philadelphia: Lippincott Williams & Wilkins.

Williams, S. M., & Beattie, H. J. (2008). Problem based learning in the clinical setting: A systematic review. *Nurse Education Today, 28*, pp. 146-154.

Wilson, B.K. (1992). Comparison of two teaching methods for teaching basic nursing skills to baccalaureate nursing students. (Doctoral Dissertation, University of Nebraska, 1992). Retrieved from ProQuest Digital Dissertations. (AAT 9225501)

Appendix A

Recruitment letter

Title of Research Study: Clinical Practice Anxiety Among Third Year Baccalaureate Nursing Students in CBL and Those in Traditional Curricula

Dear Third Year Nursing Student,

It is well known that anxiety can have a detrimental effect on reasoning and problem solving, and may contribute to poor physical and emotional health. We would like to find out more about how anxiety affects student performance in a clinical practice setting.

If you are currently a student in the third year of a four year baccalaureate nursing program, you are invited to participate in a research study that examines clinical practice anxiety. If you agree to participate in the study, you will be asked to fill out two short questionnaires on a secure website that will take about 15 minutes of your time. By hitting the "submit" button, one's consent to participate is implied. **The electronic survey will open at 0800 on October 1, 2007 and will close at 2000 on October 16, 2007.**

Your participation is this study is strictly voluntary and will not affect any aspect of your educational program. You may choose to withdraw from the study without penalty. There are no direct risks or benefits to you by participating in the study and you will not be personally identifiable. Neither the researchers nor faculty will know which students have participated in the study. Responses will be completely anonymous and results will be presented only as aggregated data as per the University policy. Data from this study must be kept in a secure area for seven years after which time it will be destroyed. If the data is looked at again in the future, the researchers will secure the approval of the appropriate research ethics board.

This study is being led by Katherine Melo, who is a graduate student at the University of Alberta, as part of an MN thesis requirement. This study has been approved by the Health Research Ethics Board- Panel B. We have also been given permission to conduct this study by the Research and Scholarly Development Committee of the Faculty of Nursing at the University of Calgary. If you have any questions about your rights as a research subject, please contact Dr. Christine Newburn Cook, Associate Professor, Faculty of Nursing at: christine.newburn-cook@ualberta.ca or (780) 492-5929. Any questions about the study can be directed to the researchers whose contact information is listed below.

Thank you for assisting us with this study.

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Appendix B

SURVEY FOR THIRD YEAR NURSING STUDENTS

The purpose of this survey is to collect data about the anxiety that nursing students experience in the clinical area. The survey includes three parts: (a) demographic data, (b) a self-evaluation questionnaire, and (c) the clinical experience assessment form.

I. DEMOGRAPHIC DATA:

Please place a checkmark in the box following the most appropriate response.

1. Gender:

1. Male ☐ 2. Female ☐

2. What is your age?

18-19 ☐
20-21 ☐
22-23 ☐
24-25 ☐
> 25 ☐

3. Are you a full time student?

1. Yes ☐ 2. No ☐

4. Prior to your most recent clinical placement, you have had clinical practice in the following areas:

General Medicine	☐	General Surgery	☐
Pediatrics	☐	Maternal/Newborn	☐
Psychiatric/Mental Health	☐	Oncology	☐
Rehabilitation	☐	Operating/Recovery Room	☐
Emergency Care	☐	Critical/Intensive Care	☐
Home Care	☐	Geriatric/Long Term Care	☐
Community Health	☐	Public Health	☐
Other (Please Specify):	☐		

5. Your current, most recent, area of clinical practice is in:

General Medicine ☐
Pediatrics ☐
Psychiatric/Mental Health ☐
Rehabilitation ☐
Emergency Care ☐
Home Care ☐
Community Health ☐
Other (Please Specify): ☐

General Surgery ☐
Maternal/Newborn ☐
Oncology ☐
Operating/Recovery Room ☐
Critical/Intensive Care ☐
Geriatric/Long Term Care ☐
Public Health ☐

6. Approximately how many hours do you study per week?

0-1 hour ☐
2-3 hours ☐
4-5 hours ☐
>5 hours ☐

7. Preferred learning method(s) for the course material:

1. Clinical experience ☐
2. Discussion group ☐
3. Lectures ☐
4. Independent study ☐
5. Group projects ☐
6. Others(s) ☐

8. Sources of psychological supports:

1. Spouse or significant other ☐
2. Parents ☐
3. Peers ☐
4. Multiple sources ☐
5. Other ☐

II. SELF-EVALUATION QUESTIONNAIRE: STAI FORM Y-1

* The following are sample items from the STAI (S-Anxiety Scale)

Direction: A number of statements which people have used to describe themselves are given below. Read each statement and then check the appropriate box to the right of the statement to indicate how you feel *right now*, that is, *at this moment.*

1 = Not At All **2 = Somewhat** **3 = Moderately So** **4 = Very Much So**

	1	2	3	4
9. I feel calm	☐	☐	☐	☐
10. I feel secure	☐	☐	☐	☐
11. I am tense	☐	☐	☐	☐

II. SELF-EVALUATION QUESTIONNAIRE: STAI FORM Y-2

* The following are sample items from the STAI (T-Anxiety Scale)

Direction: A number of statements which people have used to describe themselves are given below. Read each statement and then check the appropriate box to the right of the statement to indicate how you *generally feel.*

1 = Almost Never **2 = Sometimes** **3 = Often** **4 = Almost Always**

	1	2	3	4
29. I feel pleasant	☐	☐	☐	☐
30. I feel nervous and restless	☐	☐	☐	☐

II: Spielberger, C.D. (1983). State-trait anxiety inventory for adults. Redwood City, CA: Mind Garden(permission granted for use-Appendix E))

*Portions of the instrument have been omitted in accordance with copyright specifications of the publisher

III. CLINICAL EXPERIENCE ASSESMENT FORM

How much do you agree that each of the following statements is anxiety-producing for you in clinical situations? Please check the box next to the appropriate response.

1 =Strongly Disagree **2 =Disagree** **3 = Neutral**

4 = Agree **5= Strongly Agree**

49. Talking to patients	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
50. Talking with patient's family	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
51. Reporting to team leader	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
52. Talking with physicians	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
53. Asking questions of faculty	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
54. Evaluation by faculty	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
55. Patient teaching	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
56. Procedures, i.e., injections	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
57. Hospital equipment, i.e., IV pump	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
58. Fear of making mistakes	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
59. Patient's AM care	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
60. Availability of instructor	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
61. Initial clinical experience on unit	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
62. Beforehand in hospital preparation	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
63. Being observed by instructors	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
64. Being late	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Please answer the following question:

65. What has been the most anxiety producing aspect of your clinical experience?

III: Kleehammer, K., Hart, Hart, A.L., & Keck, J.F. (1990). Nursing students' Perceptions of anxiety-producing situations in the clinical setting. *Journal of Nursing Education, 11*(2), 110-120. (permission granted for use –Appendix F)

Appendix C

Dear Sir or Madame,

As a nursing educator and MN student at the University of Alberta, I am concerned about the feelings of anxiety that nursing students are experiencing during clinical practice. It is well known that anxiety can have a detrimental effect on student learning and can contribute to poor physical and emotional health. All of these factors can affect clinical performance. The nursing literature has identified many of the common clinical stressors but little research has been done to measure the ***levels*** of anxiety that students are experiencing.

I am asking your permission to have some of your third year nursing students participate in a research study that examines clinical practice anxiety. The students will be asked to fill out a short questionnaire on a secure Web CT site that asks them to rate the level of anxiety they normally experience and the anxiety they experience when they are exposed to known clinical stressors. The survey will require approximately 15 minutes of their time. Their participation in this study is strictly voluntary.

Potential benefits resulting from this study include:

- A better understanding of which clinical stressors create the most anxiety for students
- Improvements in the way educators can support students in the clinical area

The study will take place in February and March 2007 and will involve third year nursing students at the University of Calgary, and third year nursing students at the University of Alberta. The researcher will not be involved in teaching or evaluating any of the students who are participating in the study. To maintain the highest ethical standards, the students are assured the right:

- To not participate
- To withdraw at any time without prejudice to pre-existing entitlements
- To opt out without penalty and any collected data will be withdrawn from the database and not included in the study
- To anonymity and confidentiality
- To safeguards for security of data (data will kept in a secure area for seven years after which time it will be destroyed)
- To disclosure of the presence of any apparent or actual conflict of interest on the part of the researcher

I do not anticipate any harm to come to the students as a result of their participation in this study. Participants in the study will not be personally identifiable.

This study has been reviewed and approved by the Health Research Ethics Board.

Sincerely,

Katherine Melo RN, BScN, MN (student)
Faculty of Nursing, University of Alberta
Ed N 2-111 Education Building
katherine.melo@nurs.ualberta.ca
Phone: (780) 988-7155
Fax: (780) 492-2551

Beverly Williams, Associate Professor (Thesis Supervisor)
Faculty of Nursing, University of Alberta
6-126F Clinical Sciences Building
beverly.williams@ualberta.ca
Phone: (780) 492-8054
Fax: 492-2551

Appendix D

Budget

Items/Services	Cost	Rationale
Office Supplies (Ink, paper)	**$75**	**Document printing on home computer**
Locked Filing Cabinet	**$125**	**All raw data will be stored in a locked filing cabinet for7 years**
SPSS for Windows (Upgrade to SPSS 16.0)	**$234 (CDN)**	**Software upgrade required for data analysis**
Lap top for data entry	**0**	**The researcher already owns a lap top**
STAI	**$ 427 (USD)**	**Cost of instrument and marking guide**
SurveyMonkey (monthly membership + SSL Encryption)	**19.95 + 9.95 = 29.90 (USD) x 5 months = 149.50**	**Survey administered to large sample requiring a professional subscription . SSL encryption adds extra security to survey responses.**
Total	**$1010.50 (CDN)**	

Expenses for this study will consist mainly of:

- Office supplies (photocopying, ink, paper))
- A locked filing cabinet to store confidential documents
- SPSS for Windows
- State-Trait Anxiety Inventory (STAI) Forms Y-1 & Y-2
- Monthly subscription for electronic survey access

Appendix E

Letter of Permission to Reproduce STAI

State-Trait Anxiety Inventory for Adults

Permission to reproduce 500 copies for
one year from date of purchase

Developed by Charles D. Spielberger
in collaboration with R.L. Gorsuch, R. Lushene, P.R. Vagg, and G.A. Jacobs

Distributed by Mind Garden, Inc.

info@mindgarden.com
www.mindgarden.com

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mind garden

855 Oak Grove Avenue, Suite 215 Menlo Park, CA 94025
650-322-6300 fax 650-322-6398 www.mindgarden.com

December 13, 2006

Katherine Melo

Dear Katherine Melo,

I would like to inform you that we have received your request for permission to post a Mind Garden instrument on the Web. We have approved your request; please feel free to move forward with your project.

Thank you,

Holly Durocher
Asst. to the Director of Operations
Mind Garden, Inc.

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mind garden

855 Oak Grove Avenue, Suite 215 · Menlo Park, CA 94025
650-322-6300 fax 650-322-6398 www.mindgarden.com

Date: December 13, 2006

To whom it may concern,

This letter is to grant permission for: Katherine Melo
to use the following copyright material;

Instrument: *State Trait Anxiety Inventory for Adults*

Author: *Charles D. Spielberger*

Copyright: *1983 by Charles D. Spielberger*
for her/his thesis research.

In addition, five (5) sample items from the instrument may be reproduced for inclusion in a proposal or thesis.

The entire measure may not at any time be included or reproduced in other published material.

Sincerely,

Vickie Jaimez
Director of Operations

Appendix F

Letter of Permission to Use the CEAF

msn Hotmail®

k_melo@hotmail.com Printed: November 22, 2006 5:45:44 PM

From : Katherine Melo <katherine.melo@nurs.ualberta.ca>
Sent : March 21, 2006 11:37:25 PM
To : <k_melo@hotmail.com>
Subject : FW: Request for permission to use the Clinical Experience Assessment Form for an MN thesis study

Attachment : studentanxietyquestionnaireInWord.doc (0.03 MB)

From: Keck, Juanita F [mailto:jkeck2@iupui.edu]
Sent: Friday, January 06, 2006 7:19 AM
To: Katherine Melo
Subject: RE: Request for permission to use the Clinical Experience Assessment Form for an MN thesis study

You have permission to use the instrument which I have attached. I wish you every good fortune as you conduct your study.

Juanita Fogel Keck, DNS, CNS, RN

Professor and Chair, Adult Health Department

Indiana University School of Nursing

1111 Middle Drive, NU 408

Indianapolis, IN 46202

Work 317 274-0050

FAX 317 278-1856

jkeck2@iupui.edu

-----Original Message-----
From: Katherine Melo [mailto:katherine.melo@nurs.ualberta.ca]
Sent: Thursday, January 05, 2006 5:30 PM
To: Keck, Juanita F
Subject: Request for permission to use the Clinical Experience Assessment Form for an MN thesis study

CLINICAL EXPERIENCE ASSESSMENT FORM

Age_______ Sex________ Class Year: Junior_______ Senior_______

1. Did/Do you experience anxiety in the clinical setting?
   Yes ___ NO____
   (If your answer is no, you have completed the questionnaire. If your answer is yes, please continue.)

Indicate how much you agree that each of the following statements is anxiety producing for you

2. Talking to Patients					
3. Talking with Patients' families					
4. Reporting to Team Leader					
5. Talking with Physicians					
6. Asking Questions of Faculty					
7. Evaluation by Faculty					
8. Patient Teaching					
9. Procedures, i.e., injections					
10. Hospital Equipment, i.e., IV Pump					
11. Fear of Making Mistakes					
12. Patients' A.M. Care					
13. Availability of Instructor					
14. Initial Clinical Experience on Unit					
15. Beforehand In-Hospital Preparation					
16. Being Observed by Instructors					
17. Being Late					
18. Other (please specify) ________________________________					

19. What has been the most anxiety producing aspect of your clinical experience?

Appendix G

HREB Approval

Health Research Ethics Board

213 Heritage Medical Research Centre
University of Alberta, Edmonton, Alberta T6G 2S2
p.780.492.9724 (Biomedical Panel)
p.780.492.0302 (Health Panel)
p.780.492.0459
p.780.492.0839
f.780.492.7808

HEALTH RESEARCH ETHICS APPROVAL FORM

Date: February 2007

Name of Applicant: **Beverley A. Williams**

Organization: **U of A**

Department: **Faculty of Nursing**

Project Title: **Clinical Practice Anxiety Among Third Year Nursing Students in CBL and those in Traditional Curricula**

The Health Research Ethics Board (HREB) has reviewed the protocol for this project and found it to be acceptable within the limitations of human experimentation. The HREB has also reviewed and approved the subject information letter and consent form.

The approval for the study as presented is valid for one year. It may be extended following completion of the yearly report form. Any proposed changes to the study must be submitted to the Health Research Ethics Board for approval. Written notification must be sent to the HREB when the project is complete or terminated.

Special Comments:

FEB 20 2007

Dr. Jennifer Rodgers, PhD
Associate Chair, Health Research Ethics Board
(B: Health Research)

Date of Approval Release

File Number: B-130207

UNIVERSITY OF ALBERTA

Capital Health
Edmonton and area

CARITAS HEALTH GROUP

Appendix H

Research and Scholarly Development Approval

Windows Live™

FW: Approval

From: **Katherine Melo** (katherine.melo@nurs.ualberta.ca)
Sent: May 7, 2007 3:47:04 PM
To: k_melo@hotmail.com

Katherine Melo
Associate Year Four Coordinator
Faculty of Nursing
University of Alberta
(780) 492-9903
CSB 4-133

-----Original Message-----
From: Carolyn Carr [mailto:ccarr@ucalgary.ca]
Sent: Thursday, March 29, 2007 9:36 AM
To: Katherine Melo
Cc: Sheila Evans
Subject: Approval

On behalf of Dr. Sheila Evans.

Members of the Research and Scholarly Development Committee have read your proposal and discussed your request for access to our students. We felt that your question was important and should be answered. We are pleased to advise you that it has been approved. We apologize for the extended delay but, we were unable to provide permission until we had received all needed responses. We do hope that this delay has not disadvantaged you unduly; however, we suspect that is not the case and for that we are sorry. As you are aware, we are nearing the end of the traditional academic year. Regular track students will be leaving the program shortly and most are completing clinical experiences. However, third year accelerated track students will be entering their spring courses which include intense clinical experiences. I see two alternatives that would maintain the integrity of your design, but would be happy to entertain more.

1. Enroll the accelerated track students now and enrol the regular track students in September. The advantage of this choice is that the 3rd year accelerated track students have had significant clinical experience at this point and will be more similar to the regular track third year students.
2. I just don't think there is enough time to enrol both groups together before classes end this term. Therefore, another option is that you enroll both regular track and accelerated track students in the fall semester. However, be aware that, in the fall, the third year accelerated track students are, in reality, very new to nursing and will most likely suffer the anxieties of new students.

I do hope that one of these scenarios will work for you Katherine and wish you the very best of luck in your work.
Sincerely,
Sheila Evans

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--
Carolyn Carr
Research Administrator,
Administrative Assistant to
Associate Dean of Research
Faculty of Nursing

(403)220-4646
(403)284-4803 fax

Appendix I

Approval from the Dean at the CBL Site

UNIVERSITY OF
ALBERTA

TO: Katherine Melo
Beverly Williams

FROM: Beth Horsburgh
Dean, Faculty of Nursing

CC: Joanne Olson, Associate Dean, Academic Planning & Undergraduate Programs

DATE: March 16, 2007

RE: Anxiety Survey

I am pleased to approve your proposed research study to examine clinical practice anxiety in third year nursing students as outlined in your letter of March 7, 2007.

I have copied Joanne Olson on this memo and provided her with a copy of your letter so that she is aware of this initiative. Please communicate further with Dr. Olson to arrange distribution of your survey.

Faculty of Nursing
Dean's Office

3rd Floor, Clinical Sciences Building · University of Alberta · Edmonton · Canada · T6G 2G3
Telephone: (780) 492-6236 · Fax: (780) 492-6029
www.nursing.ualberta.ca
E-mail: deans_office@nurs.ualberta.ca

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